European Commission

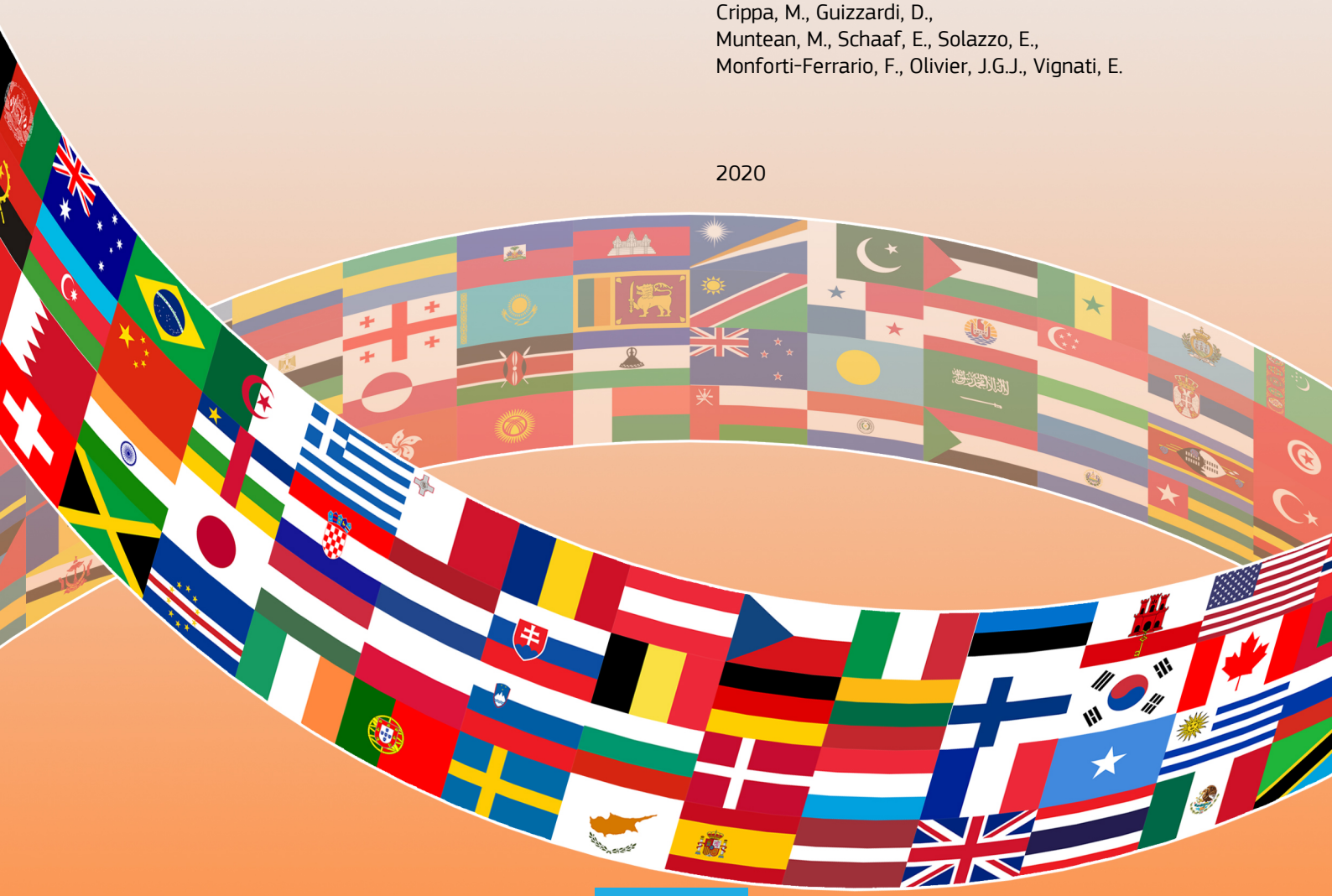
JRC SCIENCE FOR POLICY REPORT

Fossil CO_2 emissions of all world countries

2020 Report

Crippa, M., Guizzardi, D.,
Muntean, M., Schaaf, E., Solazzo, E.,
Monforti-Ferrario, F., Olivier, J.G.J., Vignati, E.

2020



Joint Research Centre

EUR 30358 EN

This publication is a Science for Policy report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policymaking process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of this publication. For information on the methodology and quality underlying the data used in this publication for which the source is neither Eurostat nor other Commission services, users should contact the referenced source. The designations employed and the presentation of material on the maps do not imply the expression of any opinion whatsoever on the part of the European Union concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Contact information
Monica Crippa
Address: European Commission, Joint Research Centre, via E.Fermi 2147, 21027 Ispra (VA), Italy
Email: JRC-EDGAR@ec.europa.eu
Tel.: +39.0332.78.5833

EU Science Hub
https://ec.europa.eu/jrc

EDGAR website
https://edgar.jrc.ec.europa.eu

JRC121460

EUR 30358 EN

PDF	ISBN 978-92-76-21515-8	ISSN 1831-9424	doi:10.2760/143674
Print	ISBN 978-92-76-21514-1	ISSN 1018-5593	doi:10.2760/56420

Luxembourg: Publications Office of the European Union, 2020

How to cite this report:
Crippa, M., Guizzardi, D., Muntean, M., Schaaf, E., Solazzo, E., Monforti-Ferrario, F., Olivier, J.G.J., Vignati, E., Fossil CO_2 emissions of all world countries - 2020 Report, EUR 30358 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-21515-8, doi:10.2760/143674, JRC121460.

Contents

Abstract

The Emissions Database for Global Atmospheric Research provides emission time series from 1970 until 2019 for fossil CO_2 for all countries. This report is contributing to the Paris Agreement process with an independent and quantitative view of global fossil CO_2 emissions.

Acknowledgements

This booklet was produced with input from many colleagues, gathered over several years. The International Energy Agency (IEA) energy use statistics are fundamental to the EDGAR database and the authors would like to thank IEA (R. Quadrelli) for the continuing collaboration. The authors would also like to thank United States Geological Survey (USGS) (R. Schulte, L. Apodaca), International Fertiliser Association (IFA) (M. Prud'homme), oil and gas company BP plc and Global Gas Flaring Reduction Partnership (GGFR)/U.S. National Oceanic and Atmospheric Administration (NOAA), for the provision of data. The authors are grateful to the Directorate-General for Climate Action (DG CLIMA) (T. van Ierland, M. Perry) for their reviews and guidance. An extra thanks to the colleagues, J. Wilson, A. Santoro and M. Weitzel for their thorough reviews and proof-reading.

Authors

Crippa, M., European Commission, Joint Research Centre (JRC), Ispra, Italy,
Guizzardi, D., European Commission, Joint Research Centre (JRC), Ispra, Italy,
Muntean, M., European Commission, Joint Research Centre (JRC), Ispra, Italy,
Schaaf, E., European Commission, Joint Research Centre (JRC), Ispra, Italy,
Solazzo, E., European Commission, Joint Research Centre (JRC), Ispra, Italy,
Monforti-Ferrario, F., European Commission, Joint Research Centre (JRC), Ispra, Italy,
Olivier, J.G.J., PBL Netherlands Environmental Assessment Bureau, Den Hague, The Netherlands,
Vignati, E., European Commission, Joint Research Centre (JRC), Ispra, Italy.

Executive summary

Policy context

The European Union has set very ambitious objectives as far as climate change is concerned: in the context of the 2030 Energy and Climate framework, the European Union currently has a target of reducing its greenhouse gas emissions by at least 40% compared to 1990 levels, an objective to achieve a climate neutral EU (net zero greenhouse gas emissions) by 2050. Several proposals for strengthening the ambition of EU climate and environment policies are also planned in the context of the European Green Deal([1]).

Beyond the EU, all Parties to the Paris Agreement are required to prepare emissions reduction pledges, known as nationally determined contributions (NDCs). The Paris Agreement includes a transparency framework under which all Parties are requested to report bottom-up inventories of national greenhouse gas emissions and track progress towards the implementation and achievement of their NDCs. While bottom-up national emission inventories are essential for reporting and tracking purposes, they have a number of shortcomings. In particular, national inventory reports do not cover the entire globe, are dependent on the separate reporting processes of over 190 countries, have data gaps for specific sectors, and are not requested to produce decades-long time series and emissions up to the most recent year.

The European Commission's in-house Emissions Database for Global Atmospheric Research (EDGAR) addresses these shortcomings, completing the global picture with time-series for each country, contributing to enhanced transparency and providing a benchmark against which national and global estimates can be compared. The current version of the EDGAR database (EDGARv5.0_FT2019) contains estimates of fossil CO_2 emissions from 1970 to 2019.

EDGAR estimates are based on the latest available global statistics and state-of-the-art scientific knowledge of emission mechanisms for a wide range of anthropogenic activities. The methodology used is fully transparent and in line with both the most recent scientific literature and Intergovernamental Panel on Climate Change (IPCC) recommendations. This combination of reliability, independence and completeness makes EDGAR a valuable quantitative tool to support the complex international scientific and political discussions on climate mitigation. In particular, EDGAR data can contribute to providing a comprehensive picture needed for the UNFCCC's Global Stocktake of 2023. The previous editions of this booklet (2017, 2018, 2019) have been presented to the annual Conference of Parties (COP) under UNFCCC.

([1]) See the European Commission's European Green Deal Communiciation. COM(2019) 640 final

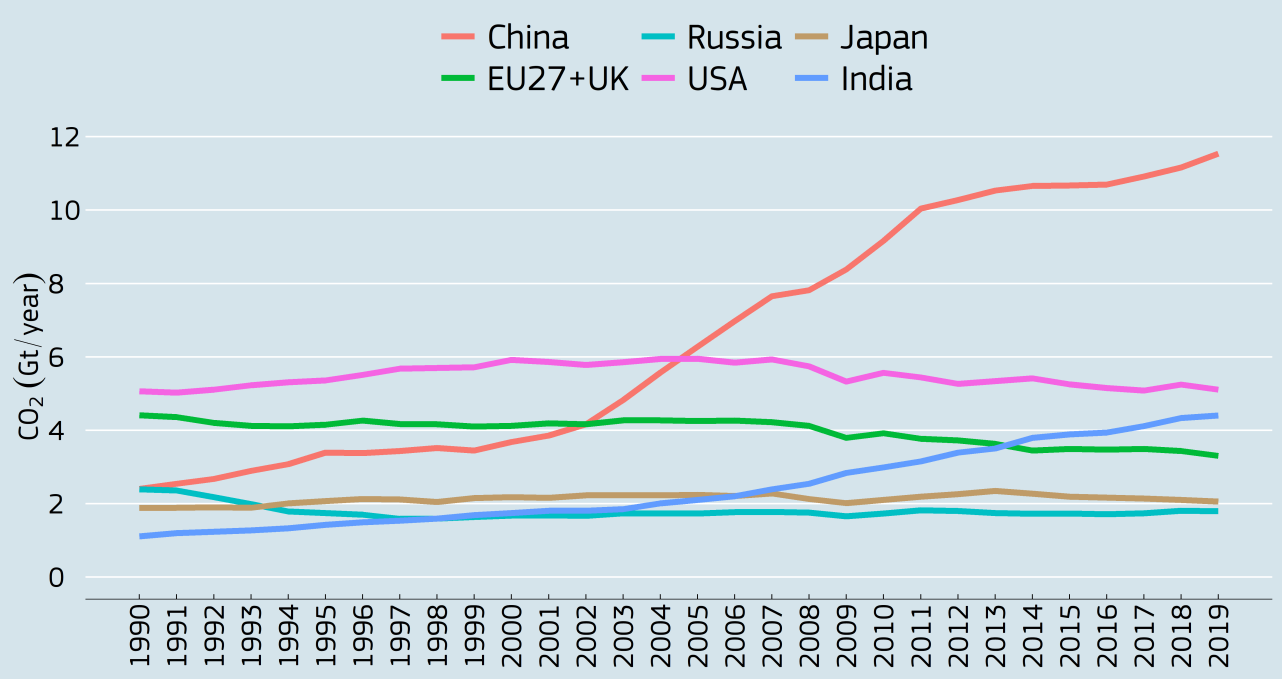
Key conclusions

In preparing the latest edition of this booklet, the EDGAR database has been updated to provide emission time series from 1970 until 2019 for anthropogenic fossil CO_2[2]. Globally, the increase of fossil CO_2 emissions observed in 2017 and 2018 continued in 2019, but at a lower growth rate. The EDGAR time series show that the European Union and Russia were the only industrialised economies (among the major emitting regions) whose fossil CO_2 emissions are significantly below their respective 1990 levels. European Union together with United Kingdom fossil CO_2 emissions were 25.1% lower in 2019 compared to 1990. By comparison, the United States and Japan increased their CO_2 emissions by 0.8 and 0.4%, respectively, compared to the 1990 levels, while the emerging economies of China and India have respectively 3.8 and 3.3 times more CO_2 emissions in 2019 compared to 1990, due to their rapid industrialisation in the past two decades.

Main findings

Since the beginning of the 21st century, global GHG emissions have grown in comparison to the three previous decades, mainly due to the increase in CO_2 emissions from China, India, and other emerging economies. The latest estimates from EDGAR confirm the continuation of this trend in 2019, with global anthropogenic fossil CO_2 emissions increasing by 0.9% compared to 2018, reaching 38.0 Gt CO_2.

Figure 1. Fossil CO_2 emissions of the major emitting economies.



Source: JRC, 2020.

[2] In this study, fossil CO_2 emissions include emissions from fossil fuel combustion (coal, oil and gas), from fossil fuel use (combustion, flaring), industrial processes (cement, steel, chemicals and urea) and product use; no short-cycle carbon CO_2 emissions are included for any sector.

In 2019, China, the United States, India, the EU27+UK, Russia and Japan - the world's largest CO_2 emitters - together accounted for 51% of the population, 62.5% of global Gross Domestic Product (World Bank, 2020), 62% of total global fossil fuel consumption (BP, 2020)([3]) and emitted 67.0% of total global fossil CO_2. Emissions from these five countries and the EU27+UK show different changes in 2019 compared to 2018: the largest increases in emissions are for China (3.4%) and India (1.6%), while the largest fall is for the EU27+UK (-3.8%). The United States (-2.6%), Japan (-2.1%) and Russia (-0.8%) all reduced their fossil CO_2 emissions. Compared to 1990, EU27+UK fossil CO_2 emissions were 25.1% lower in 2019 at 3.3 Gt CO_2, representing 8.7% of the global share and equivalent to 6.5 t CO_2/cap/yr in per-capita terms.

Trends vary also across the other 12 countries accounting for more than 1% of total global fossil CO_2 emissions each, showing reductions of 6.5% in Germany, 3.2% in South Korea, 2.3% in the United Kingdom, 1.6% in Mexico, 1.5% in Turkey and 0.4% in Brazil, whereas Indonesia (8.0%), Australia (4.2%), Iran (3.4%), Saudi Arabia and South Africa (1.5%) all increased their fossil CO_2 emissions. In 2019, emissions from international aviation and shipping increased by 3.6% and 2.4%, respectively, compared to 2018, and together represent 3.6% of total global fossil CO_2 emissions.

We have estimated that emission changes are accurate to within ±0.5% (Olivier et al., 2016) when based on robust statistical activity data (e.g. IEA energy balance data for 1970-2015) and up to 2% for the data for 2016-2019 (based on a Fast-Track([4]) approach), depending on regional, sectorial and fuel contributions. These uncertainties should be considered when using these data for any kind of analysis by readers of this booklet and policy makers.

([3]) Defined as the sum of all coal, liquid fossil fuel and natural gas consumption.

([4]) International activity data, mainly energy balance statistics of IEA (2017) for 1970-2015 were used to estimate CO_2 from fossil fuel consumption. These emissions are extended until 2019 using a fuel dependent Fast-Track approach based on IEA and BP trends. As a consequence, emissions for the last four years are characterized by higher uncertainty. Further details on the Fast Track methodology are provided in Annex 1.

Related and future JRC work

The reliability, independence and completeness of the EDGAR GHG emissions data make them a valuable quantitative tool to support the complex international scientific and political discussions on climate mitigation. The EDGAR database compiles global greenhouse gas and air pollutant emissions making use of international global statistics and of a globally consistent methodology across countries, whereas national inventories represent the official emissions data reported by the EU Member States to the European Environmental Agency which are used for tracking policy targets. Therefore, the objectives of the EDGAR database are: to inform policy makers and the scientific community involved in the field of GHG emissions and budgets; complement and support the compilation of national inventories and the coming UNFCCC Global Stocktake foreseen under the Paris Agreement; underpin analyses of the co-benefits of air pollution and GHG emission mitigation strategies; interpret satellite data and understand emission uncertainties. A long-standing collaboration with the International Energy Agency (IEA) will lead in the near future to the co-production by IEA and JRC of fossil CO_2 emission calculation, making use of the IEA sources for CO_2 emissions from fossil fuel combustion and JRC computations of CO_2 process emissions every year. In addition, the EDGAR framework and the JRC experience in compiling emissions inventories are shared and compared within the international emissions community of the Global Emissions InitiAtive (GEIA) where EDGAR is present as member of the Scientific Steering Commitee.

While this booklet summarises data for CO_2 emissions for 1970-2019, it should be noted that EDGAR is a comprehensive global emission database, including both GHG and air pollutant emissions for all countries. The EDGAR CO_2 emissions reported in this booklet will be used by Working Group III on mitigation of the next Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR6), as well as in the upcoming UNEP Emission Gap Report (2020). EDGAR also supports the IPCC Task Force on National Greenhouse Gas Inventories, compiling and refining guidelines for national GHG emission inventories and providing training support and knowledge databases to visualise emission hot spots. Finally, EDGAR is also supporting the Arctic Monitoring and Assessment Programme (AMAP) of the Arctic Council by providing CH_4 and mercury emission data. Thanks to their transparency and completeness, EDGAR data are also being used by an ever-increasing pool of researchers and policy makers.

Quick guide

For each country, a fact sheet is provided with time-series of fossil CO_2 emissions from all anthropogenic activities except land use, land-use change, forestry and large-scale biomass burning. The upper panel of the fact sheet includes fossil CO_2 annual totals from 1990 until 2019 by sector, together with emissions per capita and per GDP([5]). An overview table with total emissions by country for the years 1990, 2005, 2018 and 2019 is also reported, together with per capita and per GDP emission data. Finally, the bottom panel of each fact sheet shows the changes in fossil CO_2 emissions by sector for the last available year (2019) compared to 1990, 2005 and the previous year (2018).

([5]) GDP: Gross Domestic Product in US Dollars expressed in 2017 Purchasing Power Parity (World Bank, 2020).

1 Introduction

Scope

In December 2015, the Paris Agreement brought all nations into a common cause to undertake ambitious efforts to combat climate change and required all parties to the agreement to put forward their best efforts through "nationally determined contributions". Acknowledging the need to ensure environmental integrity, a transparency framework was created and 5-yearly Global Stocktakes from 2023 onwards were planned.

The Emissions Database for Global Atmospheric Research (EDGAR) contributes to global climate action with an independent and quantitative view of global GHG emissions. EDGAR is a global database that estimates country- and sector-specific emissions of CO_2 and other greenhouse gases and air pollutants implementing a fully transparent state-of-the-art methodology. As such, it supports efforts to provide a consistent, transparent emissions estimate that is global in scope and can inform climate action under the Paris Agreement, although the conception and early versions of EDGAR precede by far the Paris Agreement.

This report provides a country-by-country overview of fossil CO_2 emissions as estimated by EDGAR. In particular, it provides fossil CO_2 emission estimates until 2019 based on robust statistical data and a consolidated Fast Track (FT) methodology.

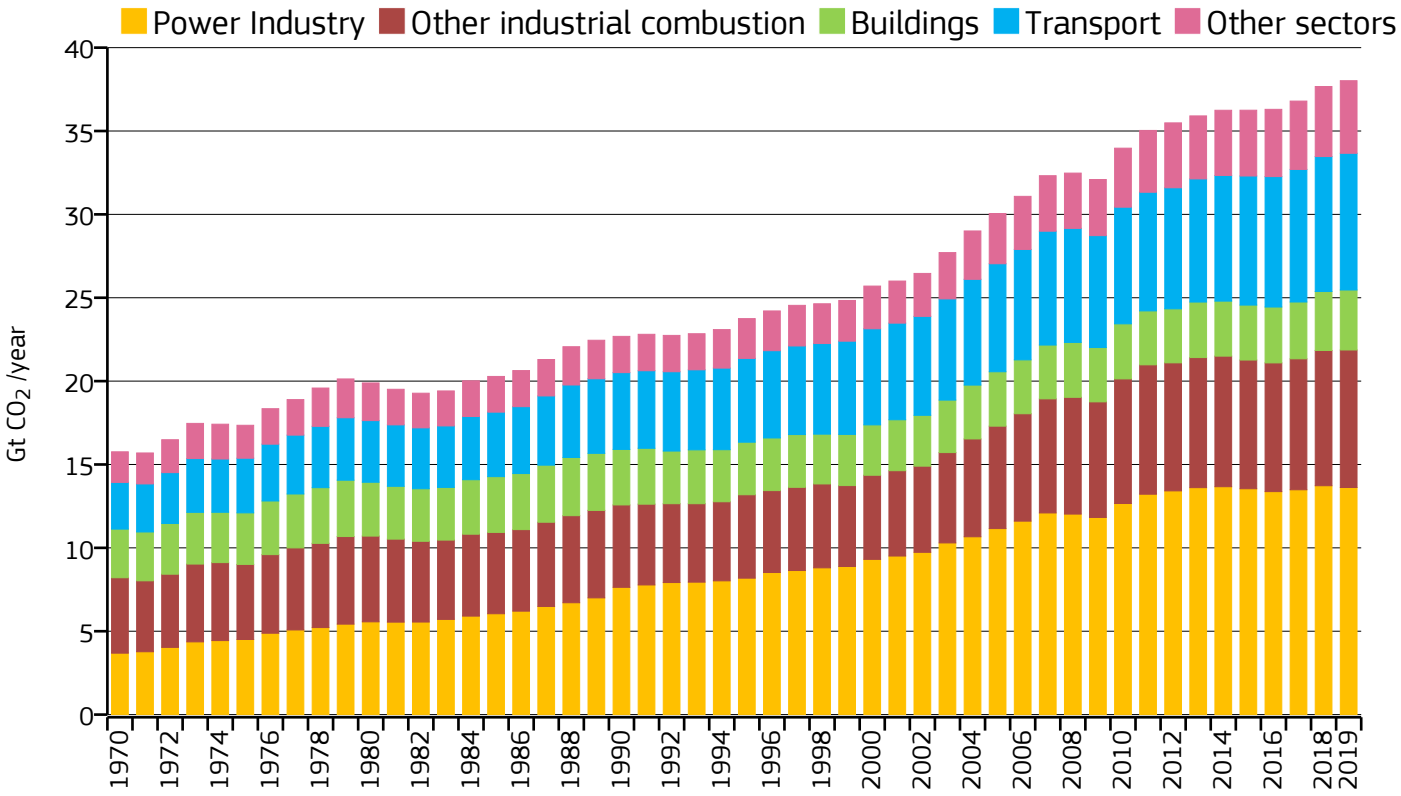
Overview

Trends in global fossil CO_2 emissions from 1990 to 2019, as well as trends of the major emitting countries and of EU27+UK are presented. A fact sheet with fossil CO_2 emission time series, per capita and per GDP data and sector-specific trends is presented for every country. Details on the bottom-up methodology applied for the EDGAR emission compilations are then reported together with the data sources and references used. Additional analyses can be found in the companion publication "Trends in Global CO_2 and Total Greenhouse Gas Emissions – 2020 Report" by Olivier et al. (2020).

2 Global Fossil CO_2 Emissions from 1990 until 2019

The global annual emissions of fossil CO_2 in Gt CO_2/yr are illustrated in Fig. 2 for the entire time series of the EDGAR database (1970-2019). Shares of emissions originating from the main activity sectors (namely power industry(6), other industrial combustion(7), transport(8), buildings, and other sectors(9)) are also indicated. Figure 3 shows the total annual fossil CO_2 emissions for the EU27+UK and the three largest emitting countries (China, Russia and United States). Per capita CO_2 emissions (in tCO_2/cap/yr) for the EU27+UK and the same top emitting countries are represented in Fig. 4.

Figure 2. Total global annual emissions of fossil CO_2 in Gt CO_2/yr by sector. Fossil CO_2 emissions include sources from fossil fuel use, industrial processes and product use (combustion, flaring, cement, steel, chemicals and urea).



Source: JRC, 2020.

(6) Includes power and heat generation plants (public and autoproducers).

(7) Includes combustion for industrial manufacturing and fuel production.

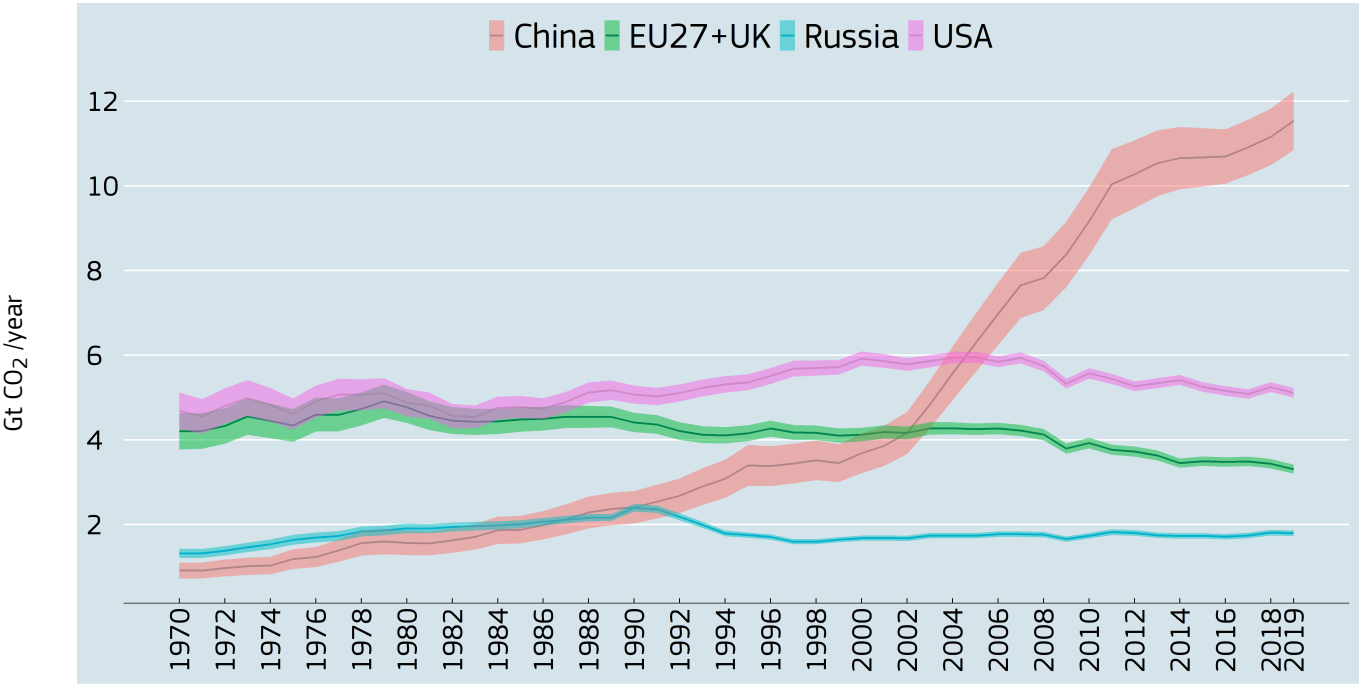
(8) Includes road transport, non-road transport, domestic aviation and inland waterways for each country. International shipping and aviation also belong to this sector and are presented separately before the country fact-sheets due to their international feature.

(9) Includes industrial process emissions (non-metallic minerals, non-ferrous metals, solvents and other product use, chemicals), agricultural soils (urea and lime application) and waste.

As shown in Figs. 3 and 4, EDGAR data include uncertainty bands that estimate the confidence interval of the emission estimates. The estimated uncertainty takes into account the accuracy of both the activity statistics and the emission factors per type of fuel. Uncertainty estimates use the tiered estimate model suggested by the Intergovernmental Panel on Climate Change (IPCC, 2006). Calculation of historic uncertainty assumes that activity data statistics were less accurate in past decades. An additional uncertainty of 0.1 to 0.4% is added due to the Fast Track approach, varying with country and year.

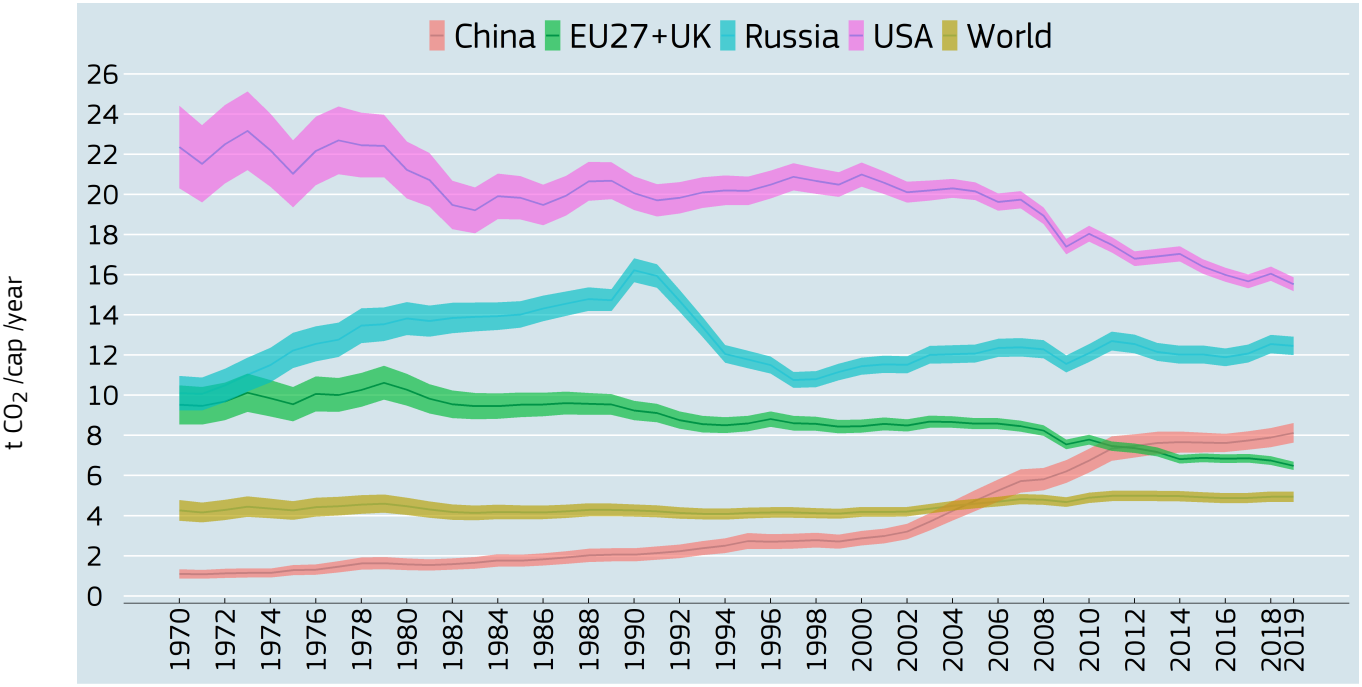
It should be noted that the uncertainties in emissions calculated with the Fast Track approach (i.e., fossil CO_2 emissions for 2016-2019) are likely higher for individual sectors and countries due to the assumptions behind this methodology. We have estimated that emission changes are accurate to within ±0.5% (Olivier et al., 2016) when based on robust statistical activity data (e.g. IEA energy balances data for 1970-2015) and up to 2% for the Fast-Track data for 2016-2019 depending on regional, sectorial and fuel contributions. This should be considered when using these data for any kind of analysis.

Figure 3. Total annual emissions of fossil CO_2 in Gt CO_2/yr for the EU27+UK and large emitting countries with uncertainty (coloured bands).



Source: JRC, 2020.

Figure 4. Per capita CO_2 emissions (in t CO_2/cap/yr) from fossil fuel use, industrial processes and product use for the EU27+UK and large emitting countries with uncertainty (in coloured bands) and for the world average.



Source: JRC, 2020.

Global fossil CO_2 emissions in 2019 increased by 0.9% to a total of 38.0 Gt CO_2, slightly lower than the trend observed between 2016 and 2018 (on average 1.3%/yr). By comparison, 2015 and 2016 were years with no, or limited growth in global emissions (0.0% in 2015 and 0.1% in 2016). Table 1 provides a global overview of the CO_2 emission change between the years 2018 and 2019 for top emitting countries. Several of the major CO_2 emitting economies reduced their emissions in 2019 compared to 2018, including the European Union (by 3.8%), United States (by 2.6%), Japan (by 2.1%), and Russia (by 0.8%) representing shares of 8.7%, 13.4%, 3.0% and 4.7% respectively of the global total. Conversely, China (3.4%) and India (1.6%) increased their emissions in 2019, representing 30.3%, and 6.8% respectively of the global total. Outside these larger emitting countries, the largest increases are observed for Indonesia by 8.0% (1.6% share), Australia by 4.2% (1.1% share), Iran by 3.4% (1.8% share), and Saudi Arabia by 1.5% (1.6% share). Among the EU Member States, Germany, responsible for 1.8% of the global emissions, had a reduction of 6.5%. Besides the top emitting countries, at the global level the largest percentage reductions have been observed in South Korea (1.7% share) with a 3.2% reduction, Mexico (1.3% share) with a 1.6% reduction and Turkey (1.1% share) with a 1.5% reduction. Global CO_2 per capita emissions have increased by ca. 15% from 4.26 t CO_2/cap/yr to 4.93 t CO_2/cap/yr between 1990 and 2019, while they remained unchanged between 2018 and 2019 (0.9% increase in line with the population growth).

Table 1. Global share in 2019 and change in fossil CO_2 emissions for top emitting countries (contributing for more than 1% each to the global total) between 2018 and 2019. Light blue shading highlights countries with CO_2 emissions increasing by more than 1% between 2018 and 2019. The average annual change since 2015 (%) representing a longer trend is also reported.

Top emitting countries	Global share	Change between 2018 and 2019	Average annual % change since 2015
China	30.3%	3.4%	2.0%
United States	13.4%	-2.6%	-0.7%
EU27+UK	8.7%	-3.8%	-1.4%
India	6.8%	1.6%	3.2%
Russia	4.7%	-0.8%	0.9%
Japan	3.0%	-2.1%	-1.5%
Iran	1.8%	3.4%	3.0%
South Korea	1.7%	-3.2%	0.5%
Indonesia	1.6%	8.0%	6.2%
Saudi Arabia	1.6%	1.5%	0.4%
Canada	1.5%	-1.4%	-0.1%
South Africa	1.3%	1.5%	0.9%
Mexico	1.3%	-1.6%	-0.3%
Brazil	1.3%	-0.4%	-2.1%
Australia	1.1%	4.2%	1.8%
Turkey	1.1%	-1.5%	3.5%
International shipping	1.9%	2.4%	2.6%
International aviation	1.7%	3.6%	4.3%

Source: JRC, 2020.

EU27+UK total fossil CO_2 emissions have decreased over the past two decades and emissions in 2019 were 25.1% lower than in 1990 and 22.2% lower than in 2005([10]). The EU27+UK share of the global total emissions decreased from 9.6% to 8.7% between 2015 and 2019. In 2019, the EU27+UK emitted 3.3 Gt CO_2, corresponding to 6.5 t CO_2 per person. A closer look at recent trends shows that the decrease of 1.5% between 2017 and 2018 has been more than doubled in 2019 to 3.8%. Among the EU27+UK countries, in 2019, the largest contributor to the EU total CO_2 emissions was Germany with 21.3%, followed by the United Kingdom (11.0%), Italy (10.0%), Poland (9.6%), France (9.5%) and Spain (7.8%). In 2019, the shares of coal, oil and gas in total fossil fuel consumption in the EU27+UK were 15.1%, 51.7% and 33.2%, respectively. In 2019, EU27+UK coal consumption fell by 21.6%, oil by 0.4%, while gas consumption increased by 2.6%. The sharp decrease in coal consumption contributed to a 4.2% reduction in CO_2 fossil fuel combustion emissions in the EU27+UK with the largest reductions for Estonia (21.4%), Finland (8.9%), Denmark (8.4%), Germany (6.5%) and Portugal (6.8%). In most of these countries, the reductions were also a consequence of moving from coal and liquid fossil fuel to less carbon intense energy sources. Conversely, non-combustion emissions were stable for the same period.

([10]) As mentioned in the executive summary, EDGAR emission estimates provide the global context needed for the upcoming UNFCCC Global Stocktakes, complementing officially reported national emission inventories. Therefore, the EDGAR data are not those used to track the accomplishment of EU reduction policies.

China's fossil CO_2 emissions have continued to increase in recent years after staying relatively flat for 2014-2016: in 2017 by 2.1%; in 2018 by 2.3%; and in 2019 by 3.4%, to reach 11.5 Gt CO_2. The corresponding per capita CO_2 emissions (8.1 t CO_2/cap/yr) in 2019 are 3% higher than in 2018 (7.9 t CO_2/cap/yr), while CO_2 emissions per GDP unit, amount to about 512 kg CO_2/1000 USD(PPP)/yr, i.e., the highest of the top-6 emitting economies. The increase in Chinese emissions in 2019 is mainly due to increases in oil and gas consumption of 5.0% and 8.6%, respectively, while coal consumption only increased by 2.3% but continued to constitute the highest share in fossil fuel consumption with 67.7%; the shares of oil, gas in fossil fuel consumption were 23.1%, 9.2%, respectively. The sectors contributing most to the fossil CO_2 emissions in China are power generation (40%) and other industrial combustion (29%); in 2019 the emissions from these sectors increased by 2.5% and 3.0%, respectively.

Emissions of fossil CO_2 of the **United States** decreased by 1.8% in 2016 and by 1.4% in 2017; in 2018 they increased by 3.2% and fell again in 2019 by 2.6%. Total fossil CO_2 emissions in 2019 accounted for approximately 5.1 Gt, with 95% emitted by combustion sources. The fall in CO_2 emissions in 2019 was driven by a substantial decrease in coal (14.6%) consumption. Compared to peak emissions in 2005, 2019 emissions were 14% lower (but slightly higher than the 1990 levels), whereas the population has increased by over 12% over the same period. Total CO_2 emissions have fallen since 2005, primarily because of reduced (-5%/yr on average) coal consumption (BP, 2020). In 2019, emissions per unit of GDP were 248 kgCO_2/1000 USD(PPP)/yr, continuing the reduction of the previous years. Emissions per capita have decreased by 3.3% in 2019 compared to 2018 to reach 15.5 t CO_2/cap/yr, still the highest level among major emitters.

India's fossil CO_2 emissions continued to increase to 2.6 Gt CO_2 in 2019, 1.6% more than in 2018, a lower increase compared to the average of the previous five years of more than 4.3%. With a share of 6.8% of total global CO_2 emissions in 2019, India is the fourth largest emitting economy after China, the United States and the EU27+UK. However, India's per capita emissions of 1.9 t CO_2/cap/yr are about four times lower than China and the EU27+UK, about eight times lower than United States and even below the average per capita emissions of many developing countries. The largest contribution to emissions comes from the the energy sector, which rose by 0.5% with respect to 2018 and which is mostly supplied by coal. Annual coal consumption, mostly domestically produced, stayed approximately constant (increased by 0.3%) whereas annual oil and gas consumption increased by 2.9% and 2.7% respectively according to BP (2020).

Russia's fossil CO_2 emissions, fell by about 0.8% just below 1.8 Gt, a level around which emissions remain relatively flat since the beginning of the century, while GDP increased by 1.3% compared to 2018. With a share in global CO_2 emissions of 4.7% in 2019, Russia is the fifth largest emitter after China, the United States, EU27+UK and India. Russian per capita emissions of 12.5 t CO_2/cap/yr are higher than those of China (by 54%), EU27+UK (by 94%) and Japan (by 37%), but 20% lower than those of the United States.

Japan saw fossil CO_2 emissions falling by 2.1% in 2019, continuing the recent decreasing trend (-12.2% in 2019 compared to 2013 when emissions peaked) in contrast to the slight increase in GDP (+0.6% in 2019 compared to 2018). Japanese fossil CO_2 emissions accounted for 1.15 Gt CO_2 in 2019, representing 3.0% of global CO_2 emissions. Japan's per capita emissions in 2019 of 9.1 t CO_2/cap/yr were of the same order of magnitude of those of the Netherlands (9.1) and slightly higher than those of Germany (8.5).

3 Pre COVID-19 global trends and future implications

The data presented in this booklet refer to the year 2019, a year ending just before the COVID-19 pandemic hit the whole world causing, inter alia, a significant impact on anthropic greenhouse gas emissions. At the time of writing this booklet this impact is still under evaluation. For this reason, the effects of the pandemic are not visible in this publication, however data contained here could be considered the most updated description of emissions in a "normal" year to be benchmarked with extraordinary emissions in 2020 and, probably, in subsequent years.

In April 2020, the International Energy Agency (IEA) published their Global Energy Review 2020 that focusses on the impacts of the COVID-19 crisis on global energy demand and related CO_2 emissions (IEA, 2020). After an assessment of the impact on global energy demand in the first quarter of 2020, the IEA developed a scenario for the full year to quantify the energy impacts due to a global recession caused by restrictions on social, mobility and other economic activities. The scenario assumes a gradual recovery from the recession and substantial permanent loss in economic activity. This scenario depicts a decline in global energy demand in 2020 by 6%, which is seven times larger than the decline due to the 2008 financial crisis: global demand for oil, coal, and natural gas could drop by 9%, 8% and 5%, respectively, resulting in an 8% decline in global CO_2 emissions from fossil fuel combustion. A reduced lockdown period, a faster recovery in the second half of 2020 in Europe and North America and shorter lockdowns in other regions could reduce the negative impact on Asian manufacturing countries, leading to decreases in oil, coal and natural gas by about 6.5%, 5% and 2.3%, and would result in a 5% decline in global CO_2 emissions.

In this scenario, the uncertainty for coal is largest among all fossil fuels. This is because its use is concentrated in the power sector, and therefore strongly dependent on the electricity demand. Moreover, in China and India, the first and third highest electricity users, coal is dominant. Coal use in power generation is also dependent on non-fossil power generation, such as hydro, wind, and nuclear, that are less affected by the COVID-19 crisis due to their lower marginal costs. Finally, actual coal trends in China, and therefore in the world, could strongly depend on the magnitude and setup of the financial stimulus for the economy that the government has pledged to implement.

The lockdown effects in the first quarter of 2020 have been compiled and discussed in great detail in the works of LeQueré et al. (2020) and Liu et al. (2020). LeQueré et al. (2020) estimate a decrease in 2020 of global CO_2 emissions from fossil fuel combustion between 4.2% and 7.5% (with an uncertainty of about ±50%) which is comparable to the rates of decrease needed year-on-year over the next decades to limit climate change. This estimate was made using sensitivity tests that assumed different scenarios for deconfinement, how long it will take to resume normal activities and the degree to which life comes back to pre-confinement levels of activities. Global CO_2 emissions from agriculture by the use of urea as fertiliser and from liming of soils will also likely reduce by several percent in 2020, as shown in previous global recessions.

4 Conclusions

The Emissions Database for Global Atmospheric Research (EDGAR) is a comprehensive inventory of anthropogenic emission time series from 1970 until 2019 for fossil CO_2. An IPCC-based bottom-up emission calculation methodology is applied to all countries, demonstrating that consistent inventories can be developed for all countries within the limitations of the quality of the available statistical data. EDGAR complements the data prepared by most of Annex I([11]) countries (mostly industrialised countries) that can count on a good statistical data infrastructure and regular reporting system to the UNFCCC. In the case of countries with less developed statistical data infrastructure, EDGAR can provide useful information for their future emission inventory requirements, by providing an independent estimate, methodological tools and expertise to support country efforts in developing their own inventory. In particular, the time series of EDGARv5.0_FT2019 can provide the emissions trend information for all countries that will be needed for the UNFCCC's Global Stocktake in 2023. EDGARv5.0_FT2019 provides an important input to the analysis of global fossil CO_2 emission trends with its 49-year time series.

Analysis of the EDGAR time series shows that since the beginning of the 21st century fossil CO_2 emissions have increased compared to the three previous decades, mainly driven by the increase in CO_2 emissions from emerging economies. EDGARv5.0_FT2019 shows that global fossil CO_2 emissions from anthropogenic activities, excluding biomass burning and the land use, land-use change and forestry sector have, after stagnating in 2014-2015, increased by 0.9% between 2018 and 2019, reaching a total of 38.0 Gt CO_2. Compared to 2018, fossil CO_2 emissions in China increased by 3.4% in 2019 and in India by 1.6%, while the sharpest decrease within the top emitting economies is found for the EU27+UK with a reduction of 3.8%. Overall, EU27+UK CO_2 emissions have decreased over the past two decades, reaching in 2019 a total of 3.3 Gt CO_2, representing reduction levels of 25.1% compared to 1990 and 22.2% compared to 2005. The EU27+UK emission reduction determined a decreasing share on the global total, from 9.6% to 8.7% between 2015 and 2019, reaching an average 6.5 t CO_2/cap/yr which remains above the global per capita average (4.9 t CO_2/cap/yr).

([11]) Annex I countries under the UN Framework Convention on Climate Change: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czechia, Denmark, European Union, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States.

References

BP 2018-2019 data of the BP Statistical Review of World Energy, https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html, June 2020.

CCA: China Cement Almanac 2015. China Construction Material Press, Beijing, 2016.

CCRI: China Cement Research Institute (www.ccement.com), 2019.

EDGARv5.0_FT2019: CO_2 emissions for all world countries from 1970 to 2019 (https://edgar.jrc.ec.europa.eu/overview.php?v=booklet2020).

GGFR/NOAA: 1994-2018 data for gas consumption for flaring, 2019.

IEA: GDP data for a few missing countries in the WB dataset, 2019.

IEA: Energy balance statistics for 1970-2015, http://www.iea.org/, 2017.

IEA: CO_2 Emissions from Fuel Combustion, https://webstore.iea.org/co2-emissions-from-fuel-combustion-2019-highlights, 2019.

IEA: Global Energy Review 2020. The impacts of the Covid-19 crisis on global energy demand and CO_2 emissions. Paris, April 2020. https://www.iea.org/reports/global-energy-review-2020, 2020.

IFA: Urea consumption (updates 1970-2017) and production (updates 2017-2018) statistics, 2020.

IMF/WEO data of annual GDP growth for missing data in the WB dataset for recent years. World Economic Outlook Update June 2020. International Monetary Fund, 2020.

IPCC Guidelines for National Greenhouse Gas Inventories: Volume 1: General Guidance and Reporting, Sanz Sánchez, M.J., Bhattacharya, S., Mareckova, K., http://www.ipcc-ggip.iges.or.jp/public/2006gl/vol1.html, 2006.

Le Quéré, C. , Jackson, R. B., Jones, M. W., Smith, A. J. P., Abernethy, S., Andrew, R. M., De-Gol, A. J., David R. Willis, D. R., Shan, Y., Canadell, J. G, Friedlingstein, P., Creutzig, F., Peters, G. P.: Temporary reduction in daily global CO_2 emissions during the COVID-19 forced confinement. Nature Climate Change 10, 647-653, doi:10.1038/s41558-020-0797-x (2020).

Liu, Z., Deng, Z., Ciais, P., Lei, R., Feng, S., Davis, S., Wang, Y., Yue, X., Lei, Y., Zhou, H., Cai, Z., Zheng, B., Dou, X., Cui, D., He, P., Zhu, B., Ke, P., Sun, T., Wu, Y., Schellnhuber, H.: Decreases in global CO_2 emissions due to COVID-19 pandemic, https://escholarship.org/uc/item/2fv7n055, 2020.

NBSC: Statistical Communiqué of the Peoples Republic of China on the 2018 National Economic and Social Development, 2019.

Olivier, J.G.J, Janssens-Maenhout, G., Muntean, M., Peters, J.A.H.W.: Trend in Global CO_2 emissions: 2016 Report, PBL/JRC Report 2016. Internet: https://www.pbl.nl/en/publications/trends-in-global-co2-emissions-2016-report, 2016.

Olivier, J.G.J. and Peters, J.A.H.W.: Trend in Global CO_2 and GHG Emissions – 2020 Report, PBL Report, forthcoming, 2020.

UNDP: population statistics (2019), World Population Prospects (WPP), The 2019 Revision Report United Nations, Department of Economic and Social Affairs, Population Division, 2019.

UNFCCC: for 1990-2018 cement clinker production data in CRF tables reported by Annex I countries. Data available at: https://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/10116.php, 2020.

US EIA: Energy Information Administration (of the U.S.), data interface (https://www.eia.gov/beta/international/), 2018.

USGS: data of cement, lime, ammonia and ferroalloys of the USGS Commodity Statistics (June 2020), (https://minerals.usgs.gov/minerals/pubs/commodity/), 2020.

WB data of GDP (expressed in 1000 US dollar, and adjusted to the Purchasing Power Parity of 2017) for 1990-2019, World Bank, July 2020.

WBSCD: Cement Sustainability Initiative: Getting the Numbers Right Project; Emissions report 2016. World Business Council for Sustainable Development. Internet: http://www.wbcsdcement.org/, https://gccassociation.org/gnr/, 2020.

World Steel Association, worldsteel, Steel Statistical Yearbook 2020, https://www.worldsteel.org/en/dam/jcr:e5a8eda5-4b46-4892-856b-00908b5ab492/SSY_2020.pdf), 2020.

List of abbreviations and definitions

BP	BP plc (oil and gas company; formerly British Petroleum Company plc)
cap	capita (head)
CCA	China Cement Association
CCRI	China Cement Research Institute
CO_2	Carbon dioxide
DG CLIMA	Directorate-General for Climate Action, European Commission
EC	European Commission
EDGAR	Emissions Database for Global Atmospheric Research
EIA	Energy Information Administration (of the U.S.)
EU27+UK	European Union with 27 Member States and the United Kingdom
GDP	Gross Domestic Product
GGFR	Global Gas Flaring Reduction Partnership of the World Bank
GHG	Greenhouse Gas
Gt	Gigatonnes (1000 megatonnes = 10^9 metric tonnes)
IEA	International Energy Agency of the OECD (Paris)
IFA	International Fertiliser Association
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
JRC	Joint Research Centre of the European Commission
kUSD	1000 US Dollar GDP
LULUCF	Land use, land-use change and forestry
Mt	Megatonnes (10^6 tonnes or 1 tera gramme) mass of a given (greenhouse gas) substance
NBSC	National Bureau of Statistics of China
NOAA	U.S. National Oceanic and Atmospheric Administration
n/a	Not Available
OECD	Organisation for Economic Co-operation and Development
PBL	Netherlands Environmental Assessment Agency
PPP	Purchasing Power Parity
t	tonne (1 t or 1 mega gramme) mass of a given (greenhouse gas) substance
UNFCCC	United Nations Framework Convention on Climate Change
UNPD	United Nations Population Division
USD	U.S. Dollar
USGS	United States Geological Survey
worldsteel	Word Steel Association
yr	Year

List of figures

List of tables

Annexes

Annex 1: Bottom-up methodology for the emissions compilation

The basis for the fossil CO_2 time series presented in this report is EDGARv5.0 (https://edgar.jrc.ec.europa.eu/overview.php?v=50_GHG) which covers the period 1970-2015. In EDGAR, emissions per country and compound are calculated on an annual basis and sector wise by multiplying the country-specific activity and technology mix data by country-specific emission factors and reduction factors for installed abatement system for each sector.

For the greenhouse gas emission factors, the default values recommended in the IPCC 2006 guidelines were used: global values for CO_2 from fuel combustion, and where recommended, region-specific values were applied for other sources.

All anthropogenic activities leading to climate relevant emissions are included, except biomass/biofuel combustion (short-cycle carbon) in the power, industry, buildings, transport and agricultural sectors, large-scale biomass burning and land use, land-use change and forestry (LULUCF). EDGAR makes use of the IPCC sectorial classification and a consistent bottom-up emission calculation methodology is applied to all countries, so that emissions of different countries can be compared, considering their respective levels of detail, uncertainties or data limitations. In particular, for developing countries with less robust and systematic statistical data infrastructures and limited experience in reporting their fossil fuel emissions inventories, EDGAR can provide information and support them in complying with their inventory preparation.

EDGARv5.0_FT2019 uses international activity data, mainly energy balance statistics of IEA (2017) for 1970-2015 to estimate CO_2 from fossil fuel consumption. CO_2 emissions are then extended with a Fast Track approach until 2019 using the publicly available IEA CO_2 emissions by main fuel type (coal, oil and gas) for the years 2016 and 2017 (IEA, 2019) and BP statistics (for the years 2017, 2018 and 2019) assuming the same sectoral breakdown as in the last year of the IEA energy balance statistics. As a consequence of this approach, the emissions for the Fast Track years (2016-2019) reported in this booklet will be updated in subsequent editions of this booklet, using future releases of the IEA energy balance statistics.

Updates for 2016, 2017, 2018 and 2019 for cement, lime, ammonia and ferroalloys production are based on USGS statistics, urea production and consumption are based on IFA statistics, associated gas used from flaring from GGFR/NOAA, steel production from worldsteel, and cement clinker production from UNFCCC (2020). For the other sectors with lower contributions to global CO_2 emissions, the time series have been extended for the period 2015-2019 using proxy data and relative changes in activity data compared to 2015, reported in recent data sources.

For combustion sources: detailed IEA (2017) activity data are used to calculate CO_2 emissions for the period 1970-2015. The recent trends in fossil CO_2 emissions from coal, oil and natural gas consumption reported by IEA (2019) and trends in fuel consumption reported in the BP Review of World Energy (BP, 2020) are used to calculate the relative changes beyond 2015 for CO_2 from fossil fuel combustion only. For the change in international maritime and aviation transport, we apply the reported change in CO_2 emissions accordingly with IEA (2019) for the period 2016-2017 and then we apply an average trend over the past 5 years for the extrapolation to 2019.

For the fugitive emissions: CO_2 emissions from coke production for 2015 to 2019 follow the same relative change as reported for the crude steel production of worldsteel (2020). CO_2 flared at oil and gas extraction for 1994 onwards is based on the total amount of gas flared derived from satellite observation of the intensity of flaring lights per country (GGFR/NOAA, 2019). No further updates are available at the time of production of this work, so the 2018 statistics are also applied to the year 2019.

For the metal industry: the largest contribution is from blast furnaces, which in addition to the CO_2 emissions from blast furnace gas combustion (accounted for under the energy sector) emit also CO_2 from the coke/coal input as reducing agent and limestone used for iron and steel production. Here the crude steel production statistics reported by World Steel Association (worldsteel, 2020) are used as input to calculate CO_2 emissions. Ferro-alloys production data from USGS are used to update the activity data in EDGARv5.0 up to 2015 and for more recent years (2016-2019) further updates are performed by using the pig iron production trends.

For non-metallic minerals: CO_2 emissions from carbonates used in cement clinker production are based on reported or estimated cement clinker production. Cement production was calculated from cement production reported by the USGS (2020), except for China in 2019 (NBSC, 2020). The clinker-to-cement ratio is based on the clinker production data until 2018 from UNFCCC (2020) for the so-called Annex I countries and for China from the China Cement Almanac (CCA, 2016) and from 2011 onwards from the China Cement Research Institute (CCRI, 2020). For four other countries (India, Brazil, Egypt and Thailand), we used clinker production ratios from the Cement Sustainability Initiative database "Getting the Numbers Right" of the World Business Council for Sustainable Development (WBCSD, 2020) up to the year 2017. The changes in the lime production from USGS (2020) are applied to extrapolate CO_2 emissions from all other carbonate uses (glass production etc.). Concerning the feedstock use for chemicals production, the ammonia production from USGS (2020) is used, except for urea consumption and production, where data are provided by the International Fertiliser Industry Association (IFA, 2020). It is assumed that small soil liming emissions follow the gross ammonia production trend.

For agriculture: agricultural activities comprise the application of urea and agricultural lime. Large-scale biomass burning from savannah is not included in the current work.

For the countries belonging to "Other Africa" ([12]), "Other Non-OECD Asia" ([13]) and "Other Non-OECD Americas" ([14]) in the IEA classification: the share of CO_2 emissions from all these countries in global total is very small e.g. in 2015, according to IEA, this was about 0.25%. IEA provides only aggregated activity data for these three groups of countries. Compared to the previous EDGAR version (v4.3.2), in EDGARv5.0 a new methodology was developed to allocate the activity data from IEA (2017) to each single country by using splitting factors derived from US EIA (2018) country specific data on fuel consumption of coal, oil and natural gas. Together with the IEA (2017) updates, this newly developed methodology mostly explains the differences between CO_2 time series for these countries in EDGAR v4.3.2 and v5.0 versions. Consequently, the uncertainties in CO_2 emission estimations for these countries are larger than the ones for other countries, in particular for the sectorial subdivision; additional reliable data and information are needed to improve the activity data allocation for them.

([12]) Includes Botswana (until 1980); Burkina Faso; Burundi; Cape Verde; Central African Republic; Chad; Comoros; Djibouti; Equatorial Guinea; Eswatini; Gambia; Guinea; Guinea-Bissau; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Namibia (until 1990); Niger (until 1999) Réunion; Rwanda; Sao Tome and Principe; Seychelles; Sierra Leone; Somalia and Uganda.

([13]) Includes Afghanistan; Bhutan; Cambodia (until 1994); Cook Islands; East Timor; Fiji; French Polynesia; Kiribati; Lao People's Democratic Republic; Macau, China; Maldives; Mongolia (until 1984); New Caledonia; Palau (from 1994); Papua New Guinea; Samoa; Solomon Islands; Toga and Vanuatu.

([14]) Includes Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; British Virgin Islands; Cayman Islands; Dominica; Falkland Islands (Malvinas); French Guiana; Grenada; Guadeloupe; Guyana; Martinique; Montserrat; Puerto Rico (for natural gas and electricity); Saba (from 2012); Saint Eustatius (from 2012); Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Sint Maarten (from 2012); Suriname (until 1999) and the Turks and Caicos Islands.

Annex 2: Construction of country fact-sheets

For each country, a fact sheet is provided with time series of fossil CO_2 emissions from all anthropogenic activities except land use, land-use change, forestry and large scale biomass burning.

The upper panel of the fact sheet includes the fossil CO_2 annual totals from 1990 until 2019 per sector, the fossil CO_2 per capita and per GDP (GDP is Gross Domestic Product in US Dollar expressed in 2017 Purchasing Power Parity). An overview table with total emissions by country for the years 1990, 2005, 2018, and 2019 is reported, together with per capita, per GDP emissions, and population data([15]). The bottom panel of each fact sheet shows the changes in emissions by sector in 2019 for CO_2 compared to the 1990, 2005 and 2018 levels. Along with the summary of the fossil CO_2 emission time series for each country, a graphical visualisation aids the interpretation of the CO_2 emissions change over time at the bottom of each page. The graphs compare CO_2 emissions for 2019 with the emission levels of two key years: 1990 (base year for national greenhouse gases inventory) and 2005, when the Kyoto Protocol came into effect. In addition, the trend compared to the previous year is reported. Emissions stalling, rising or dampening for the year 2019 are expressed in term of % change with respect to these two years, for sectors specified as follow:

Legend of the sectors:


Power Industry - Power and heat generation plants (public & autoproducers)


Other industrial combustion - Combustion for industrial manufacturing and fuel production


Buildings – Small scale non-industrial stationary combustion


Transport – Mobile combustion (road & rail & ship & aviation)


Other sectors – Industrial process emissions & agriculture & waste


All sectors – Sum of all sectors. The pie chart represents the sectorial share in 2019.

([15]) Population data presented in each country table are expressed as thousands (k), million (M) or billion (G) of people.

 indicates a reduction in 2019 emissions by the amount expressed by the percentage value (in green)

 indicates growth in 2019 emissions by the amount expressed by the percentage value (in red)

 In the cases where 2019 emissions have reduced or have grown by less than 5% with respect to the reference year, or have stalled, a horizontal orange arrow is shown. Also in this case the amount is expressed by the percentage value (in orange)

An “n/a” is used to indicate either a sector missing throughout the time series (meaning that no data are reported for that sector) or that no data are available for both the reference year and for 2019. Finally, in the instances when emissions from a specific sector have been reported for the reference year, but not for 2019 a decreasing green arrow is shown without the associated percentage value (as for example [Power industry, Albania]; on the opposite, when emissions from a specific sector have been reported for the 2019 year, but not for the reference year, a rising red arrow is shown without the associated percentage value (as for example [Other industrial combustion, Malta]). When computing the emission trend for the sum of all sectors, no value is reported in the case of incomplete statistics for the year 1990 (as for example Greenland). Country-specific fossil CO_2 emission time series can be downloaded at the following website: https://edgar.jrc.ec.europa.eu/overview.php?v=booklet2020.

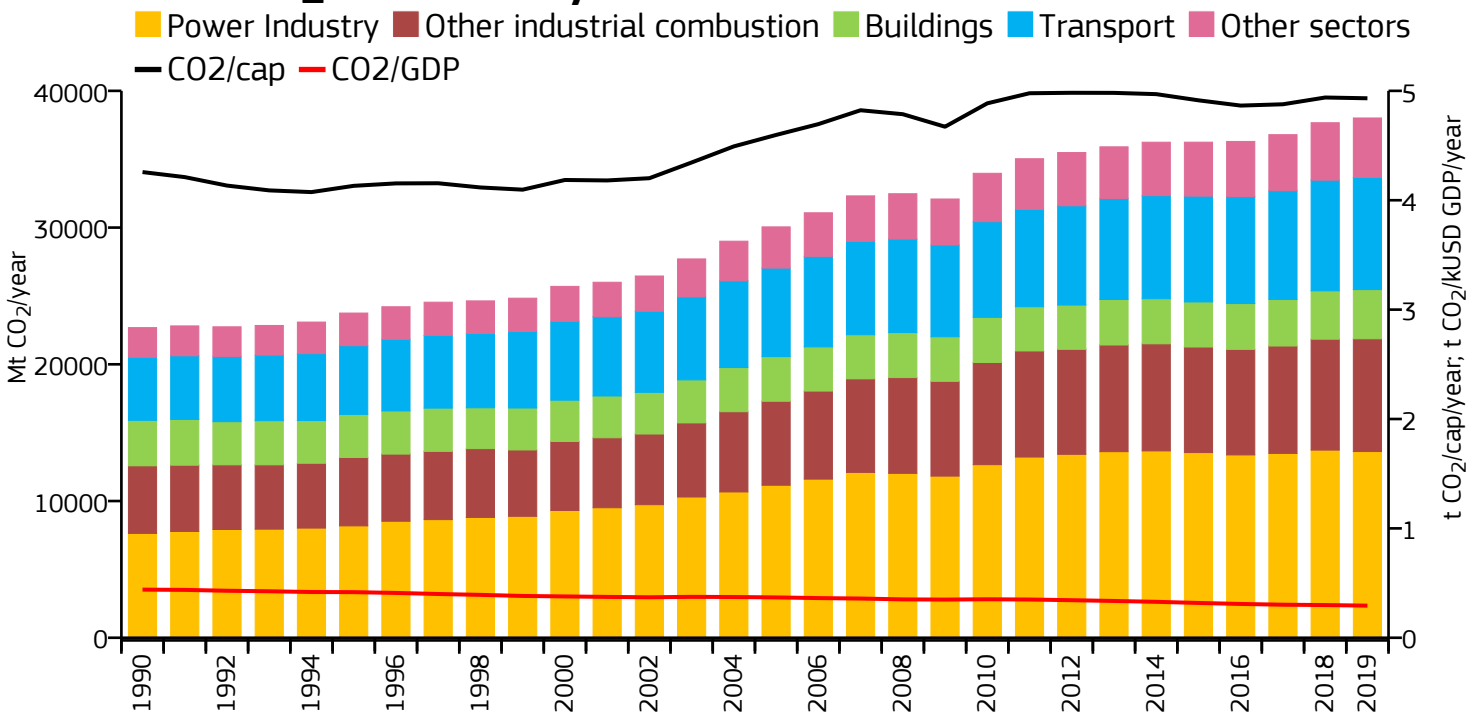
Annex 3: Fossil CO_2 emissions for the world and the EU27+UK

Global totals for all countries, including international shipping and aviation, followed by the international transport sector (shipping and aviation).

Total EU27 emissions from Member States and the United Kingdom: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

WORLD

Fossil CO_2 emissions by sector



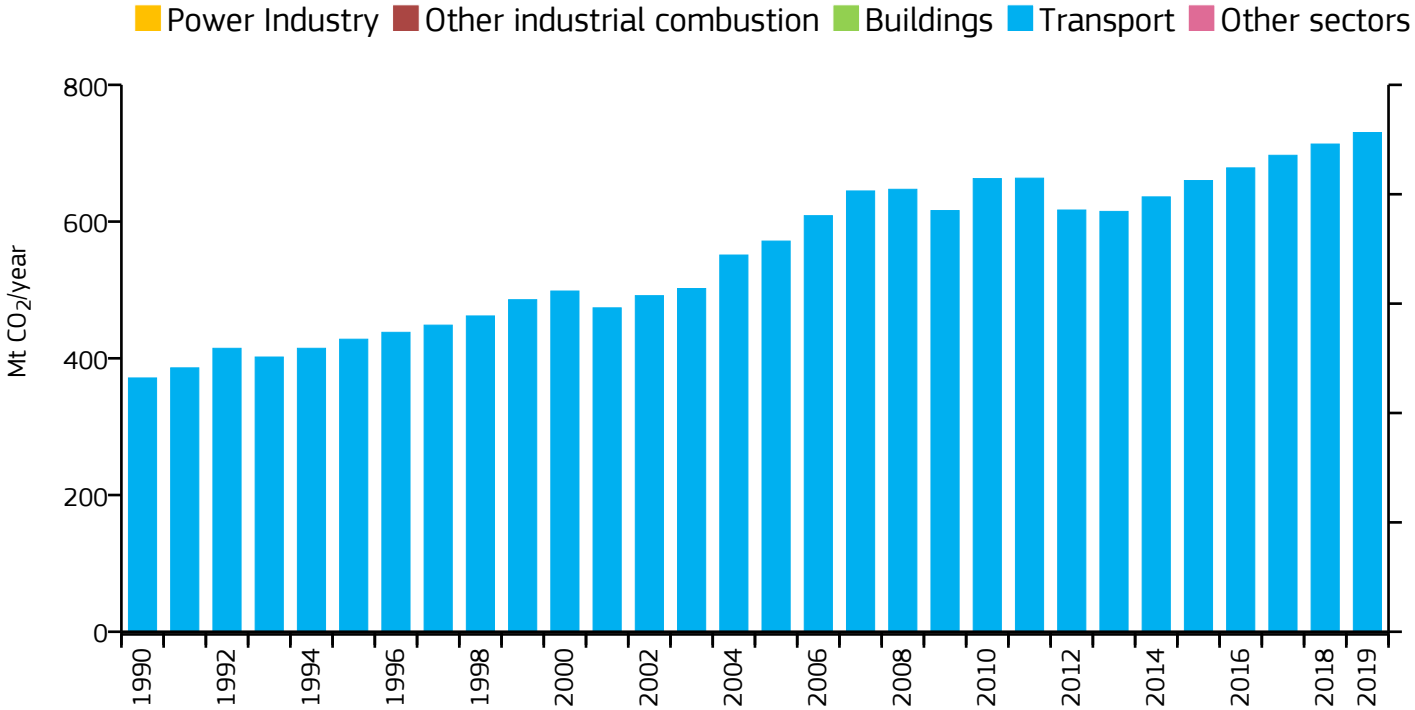
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	38016.573	4.932	0.294	7.708G
2018	37668.112	4.939	0.299	7.626G
2005	30051.444	4.597	0.369	6.537G
1990	22683.301	4.257	0.440	5.328G

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+78%	+22%	-1%
Other industrial combustion	+67%	+34%	+2%
Buildings	+8%	+10%	+2%
Transport	+78%	+27%	+1%
Other sectors	+100%	+44%	+4%
All sectors	+68%	+27%	+1%

International Shipping

Fossil CO_2 emissions by sector



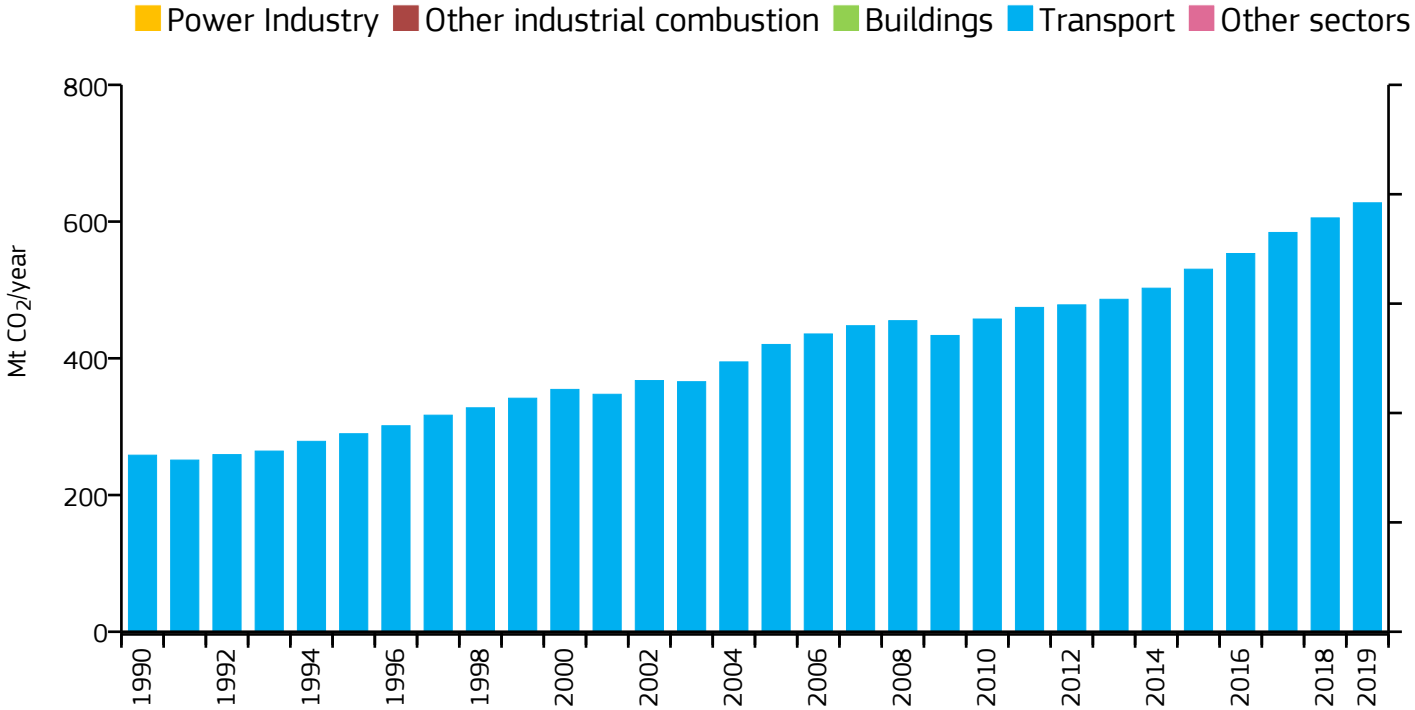
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	730.263	n/a	n/a	n/a
2018	713.432	n/a	n/a	n/a
2005	571.500	n/a	n/a	n/a
1990	371.276	n/a	n/a	n/a

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +97%	↗ +28%	→ +2%
Other sectors	n/a	n/a	n/a
All sectors	↗ +97%	↗ +28%	→ +2%

International Aviation

Fossil CO_2 emissions by sector



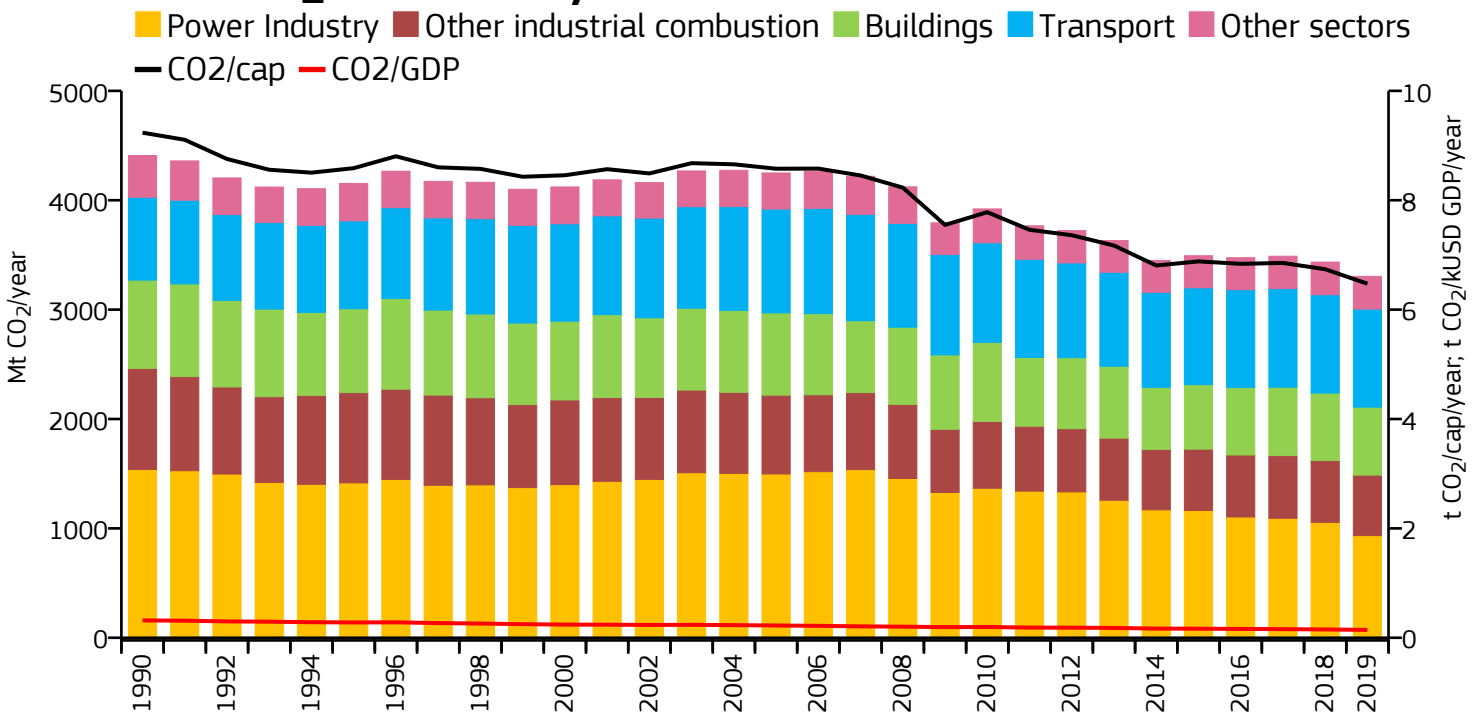
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	627.476	n/a	n/a	n/a
2018	605.395	n/a	n/a	n/a
2005	420.261	n/a	n/a	n/a
1990	258.314	n/a	n/a	n/a

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	↗ +143%	↗ +49%	→ +4%
Other sectors	n/a	n/a	n/a
All sectors	↗ +143%	↗ +49%	→ +4%

EU27+UK

Fossil CO_2 emissions by sector



Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3303.975	6.474	0.144	510.381M
2018	3434.599	6.739	0.152	509.697M
2005	4249.136	8.576	0.224	495.450M
1990	4408.726	9.235	0.317	477.381M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-39%	-38%	-12%
Other industrial combustion	-40%	-23%	-2%
Buildings	-23%	-17%	+1%
Transport	+18%	-6%	0%
Other sectors	-22%	-9%	0%
All sectors	-25%	-22%	-4%

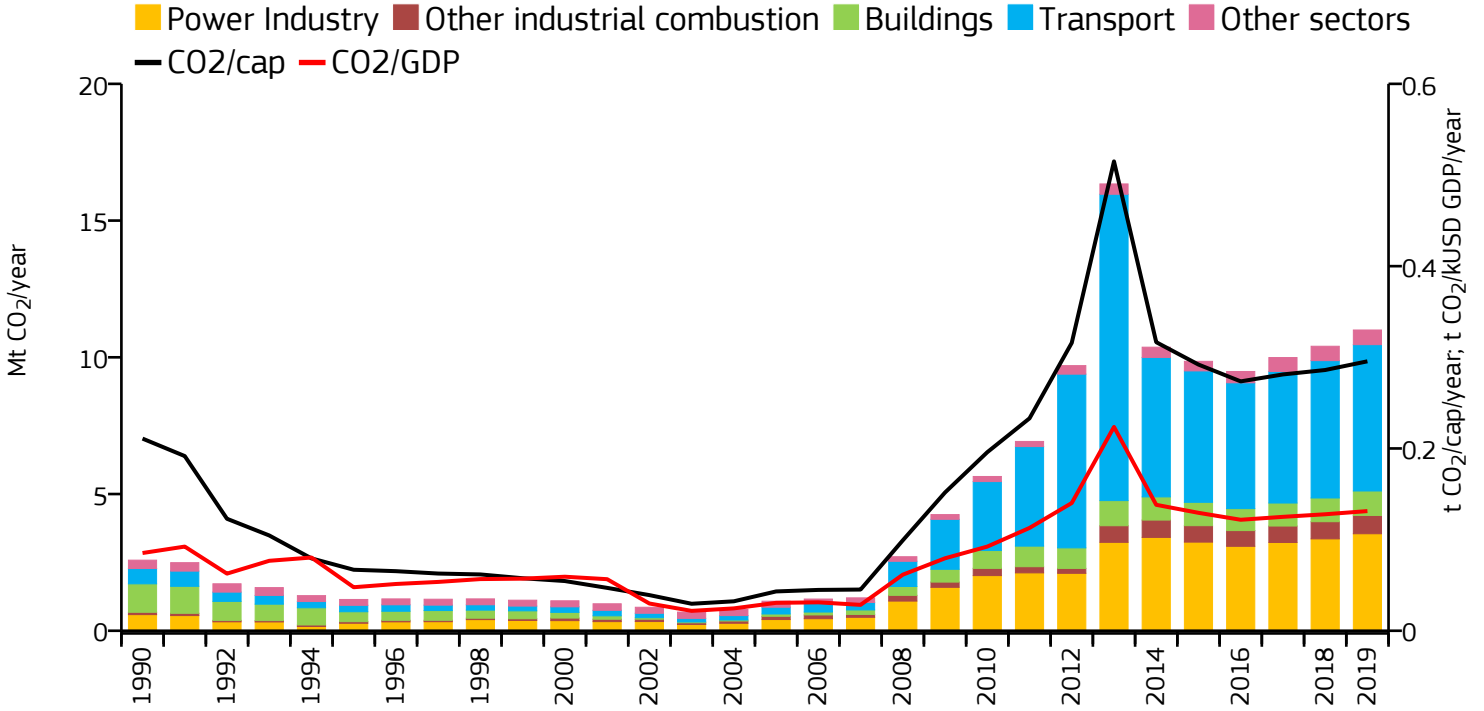
Annex 4: Fossil CO_2 emissions by country

The following countries are presented:

Fossil CO_2 emissions by country: Afghanistan; Albania; Algeria; Angola; Anguilla; Antigua and Barbuda; Argentina; Armenia; Aruba; Australia; Austria; Azerbaijan; Bahamas; Bahrain; Bangladesh; Barbados; Belarus; Belgium; Belize; Benin; Bermuda; Bhutan; Bolivia; Bosnia and Herzegovina; Botswana; Brazil; British Virgin Islands; Brunei; Bulgaria; Burkina Faso; Burundi; Cabo Verde; Cambodia; Cameroon; Canada; Cayman Islands; Central African Republic; Chad; Chile; China; Colombia; Comoros; Congo; Cook Islands; Costa Rica; Côte d'Ivoire; Croatia; Cuba; Curaçao; Cyprus; Czechia; Democratic Republic of the Congo; Denmark; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Estonia; Eswatini; Ethiopia; Falkland Islands; Faroes; Fiji; Finland; France and Monaco; French Guiana; French Polynesia; Gabon; Georgia; Germany; Ghana; Gibraltar; Greece; Greenland; Grenada; Guadeloupe; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; Hong Kong; Hungary; Iceland; India; Indonesia; Iran; Iraq; Ireland; Israel and Palestine, State of; Italy, San Marino and the Holy See; Jamaica; Japan; Jordan; Kazakhstan; Kenya; Kiribati; Kuwait; Kyrgyzstan; Laos; Latvia; Lebanon; Lesotho; Liberia; Libya; Lithuania; Luxembourg; Macao; Madagascar; Malawi; Malaysia; Maldives; Mali; Malta; Martinique; Mauritania; Mauritius; Mexico; Moldova; Mongolia; Morocco; Mozambique; Myanmar/Burma; Namibia; Nepal; Netherlands; New Caledonia; New Zealand; Nicaragua; Niger; Nigeria; North Korea; North Macedonia; Norway; Oman; Pakistan; Palau; Panama; Papua New Guinea; Paraguay; Peru; Philippines; Poland; Portugal; Puerto Rico; Qatar; Réunion; Romania; Russia; Rwanda; Saint Helena, Ascension and Tristan da Cunha; Saint Kitts and Nevis; Saint Lucia; Saint Pierre and Miquelon; Saint Vincent and the Grenadines; Samoa; São Tomé and Príncipe; Saudi Arabia; Senegal; Serbia and Montenegro; Seychelles; Sierra Leone; Singapore; Slovakia; Slovenia; Solomon Islands; Somalia; South Africa; South Korea; Spain and Andorra; Sri Lanka; Sudan and South Sudan; Suriname; Sweden; Switzerland and Liechtenstein; Syria; Taiwan; Tajikistan; Tanzania; Thailand; The Gambia; Timor-Leste; Togo; Tonga; Trinidad and Tobago; Tunisia; Turkey; Turkmenistan; Turks and Caicos Islands; Uganda; Ukraine; United Arab Emirates; United Kingdom; United States; Uruguay; Uzbekistan; Vanuatu; Venezuela; Vietnam; Western Sahara; Yemen; Zambia; Zimbabwe.

Afghanistan

Fossil CO_2 emissions by sector

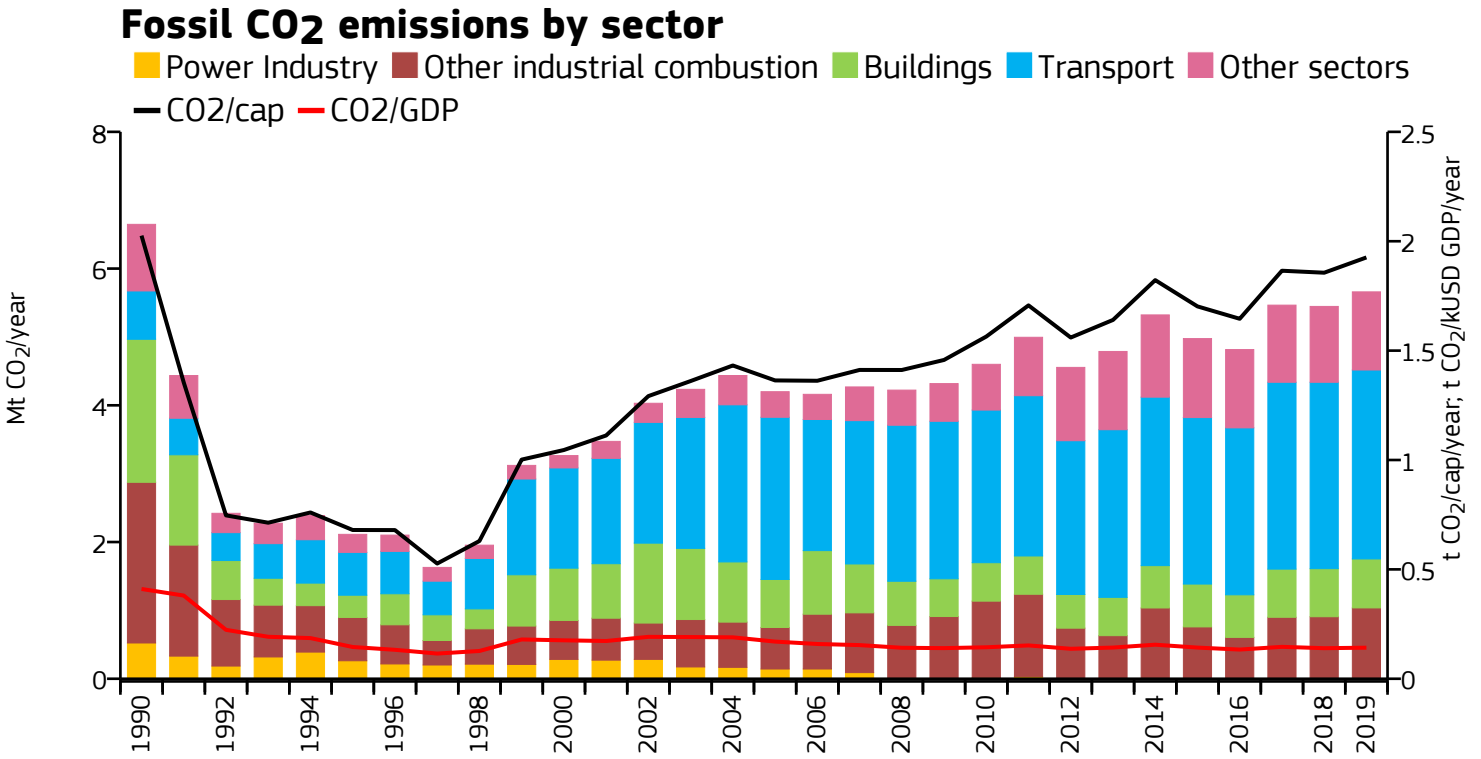


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	10.999	0.296	0.131	37.209M
2018	10.405	0.286	0.128	36.373M
2005	1.082	0.043	0.031	25.071M
1990	2.582	0.211	0.085	12.249M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+501%	+765%	+6%
Other industrial combustion	+683%	+458%	+7%
Buildings	-14%	+976%	+3%
Transport	+856%	+2054%	+7%
Other sectors	+75%	+144%	+2%
All sectors	+326%	+917%	+6%

Albania



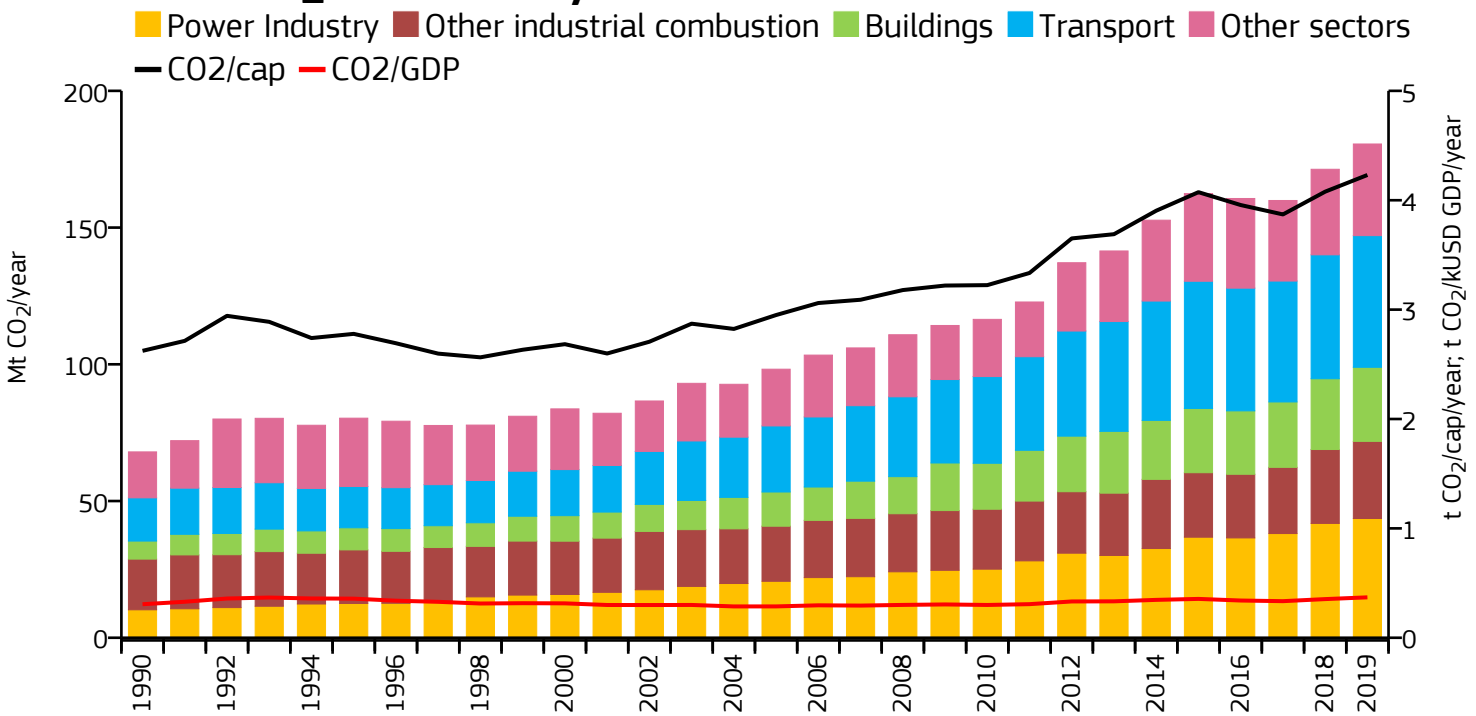
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5.659	1.926	0.142	2.938M
2018	5.446	1.856	0.140	2.934M
2005	4.199	1.364	0.170	3.079M
1990	6.647	2.026	0.410	3.281M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↘	↘	n/a
Other industrial combustion	↘ -56%	↗ +70%	↗ +14%
Buildings	↘ -66%	→ +2%	→ +2%
Transport	↗ +291%	↗ +16%	→ +1%
Other sectors	↗ +17%	↗ +206%	→ +3%
All sectors	↘ -15%	↗ +35%	→ +4%

Algeria

Fossil CO_2 emissions by sector



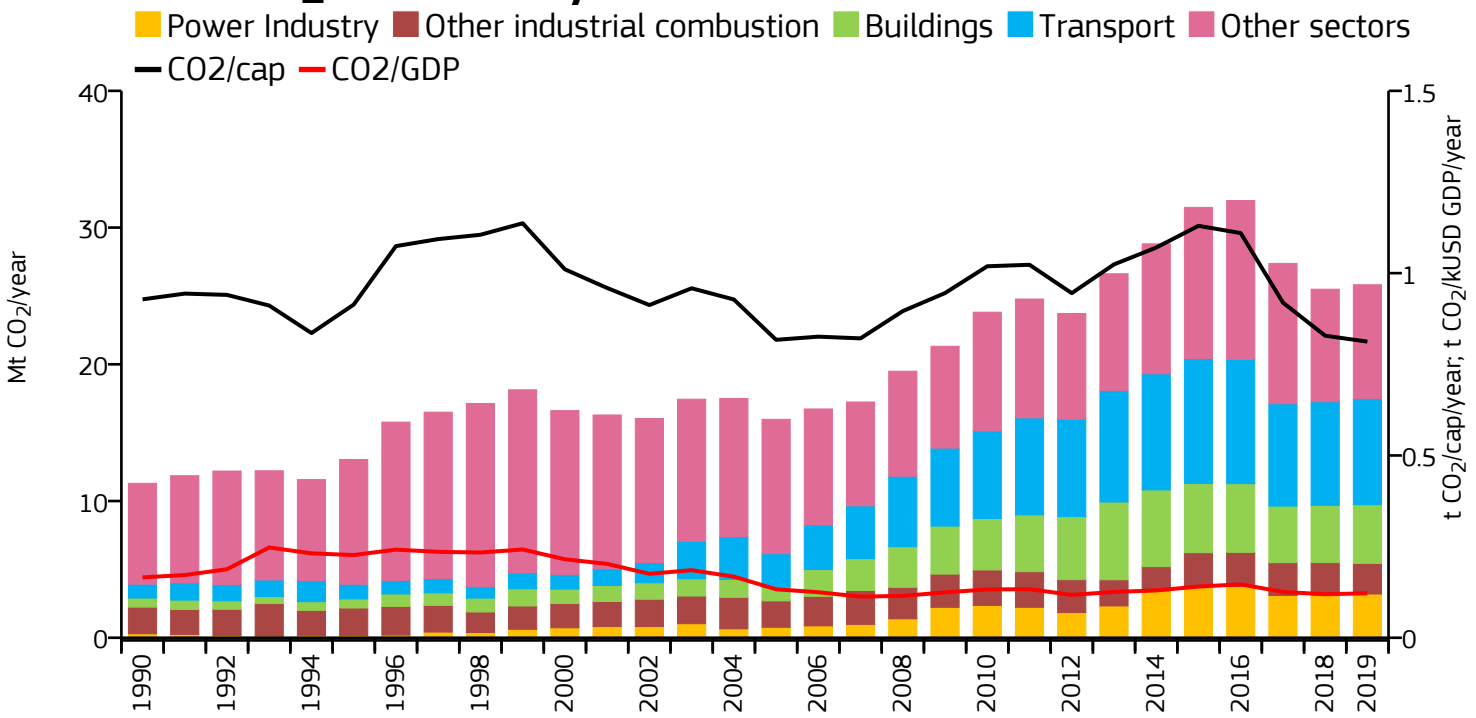
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	180.570	4.231	0.370	42.679M
2018	171.325	4.078	0.353	42.008M
2005	98.214	2.950	0.287	33.288M
1990	67.969	2.623	0.307	25.912M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+327%	+111%	+4%
Other industrial combustion	+52%	+40%	+4%
Buildings	+311%	+117%	+5%
Transport	+205%	+99%	+6%
Other sectors	+99%	+61%	+7%
All sectors	+166%	+84%	+5%

Angola

Fossil CO_2 emissions by sector



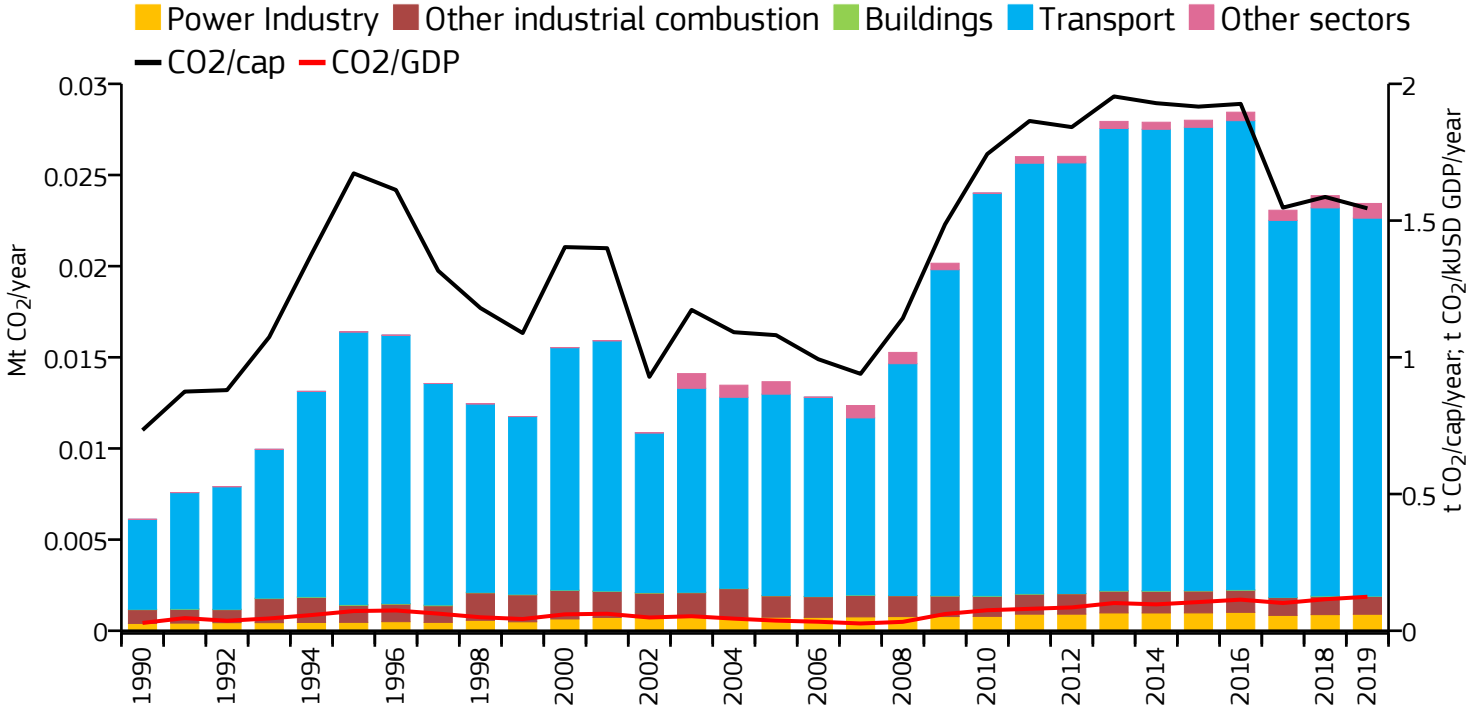
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	25.819	0.812	0.122	31.788M
2018	25.494	0.828	0.119	30.774M
2005	15.978	0.817	0.133	19.552M
1990	11.297	0.928	0.166	12.171M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+998%	+317%	+2%
Other industrial combustion	+15%	+16%	-5%
Buildings	+547%	+330%	+2%
Transport	+663%	+216%	+2%
Other sectors	+13%	-15%	+1%
All sectors	+129%	+62%	+1%

Anguilla

Fossil CO_2 emissions by sector

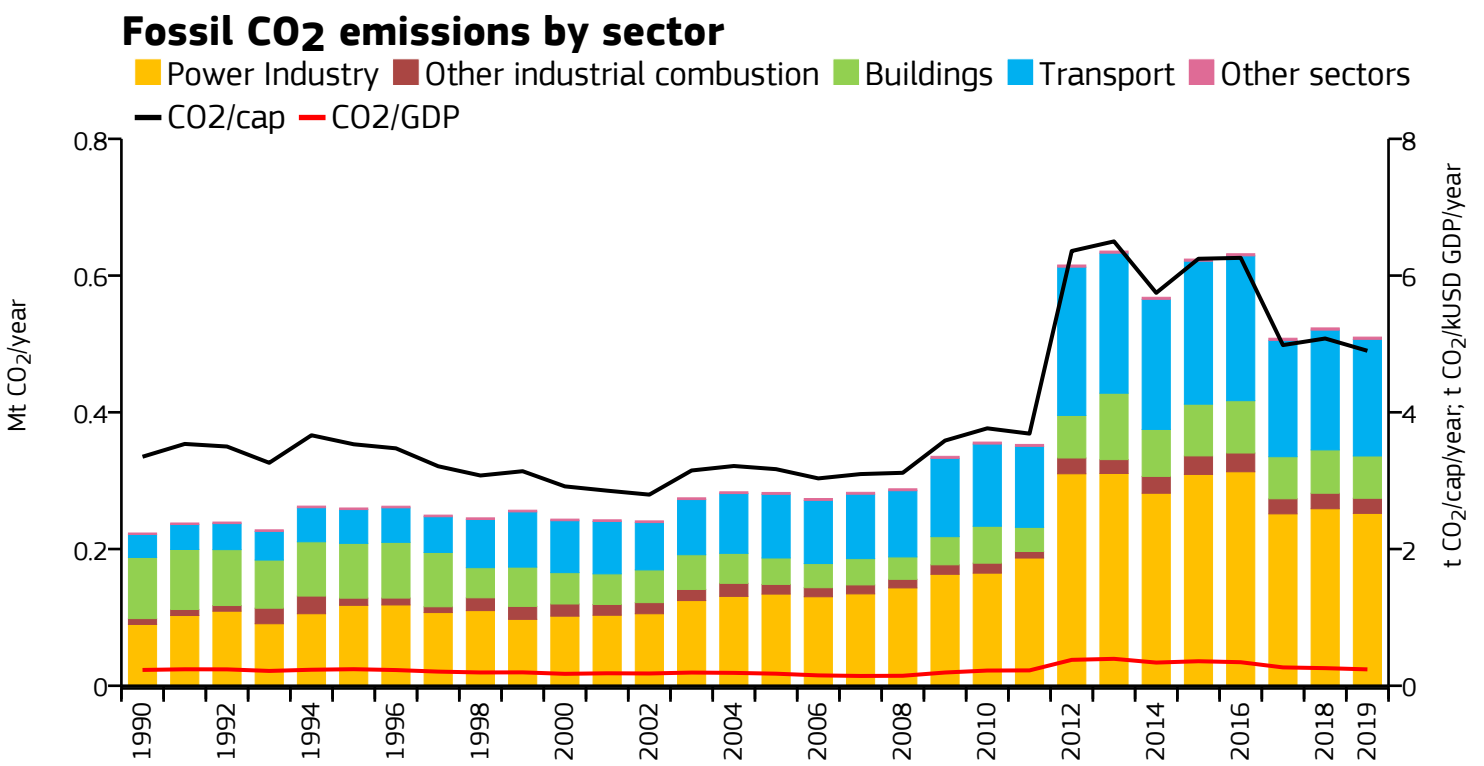


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.023	1.545	0.124	15.174k
2018	0.024	1.586	0.115	15.045k
2005	0.014	1.081	0.037	12.638k
1990	0.006	0.734	0.029	8.334k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+125%	+22%	+2%
Other industrial combustion	+30%	-16%	-3%
Buildings	-32%	-21%	-2%
Transport	+320%	+88%	-3%
Other sectors	+193213%	+18%	+20%
All sectors	+283%	+72%	-2%

Antigua and Barbuda

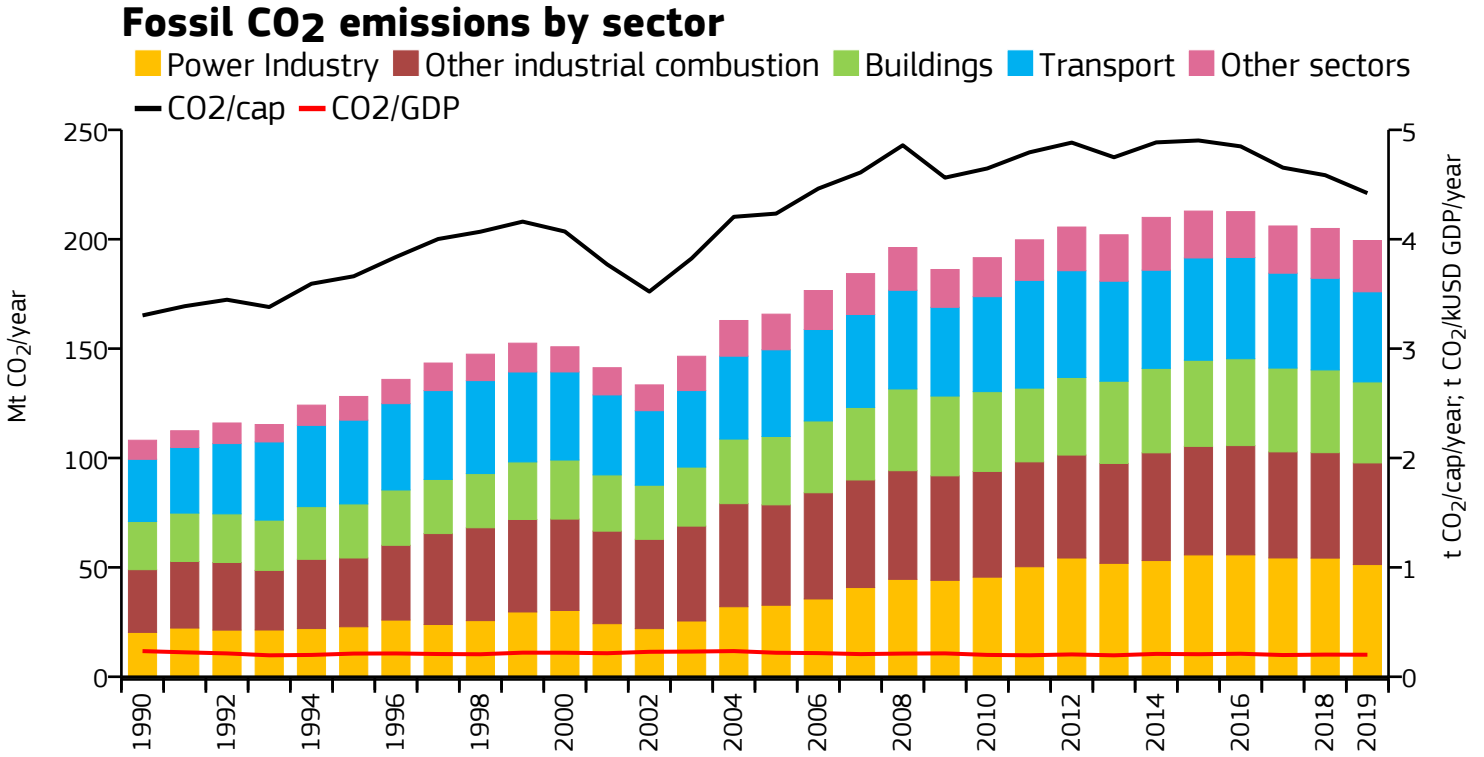


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.510	4.900	0.240	104.084k
2018	0.523	5.080	0.257	103.050k
2005	0.283	3.168	0.176	89.253k
1990	0.223	3.350	0.231	66.696k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+181%	+88%	-3%
Other industrial combustion	+158%	+56%	-3%
Buildings	-31%	+60%	-2%
Transport	+407%	+83%	-3%
Other sectors	+56%	+20%	+2%
All sectors	+128%	+80%	-3%

Argentina



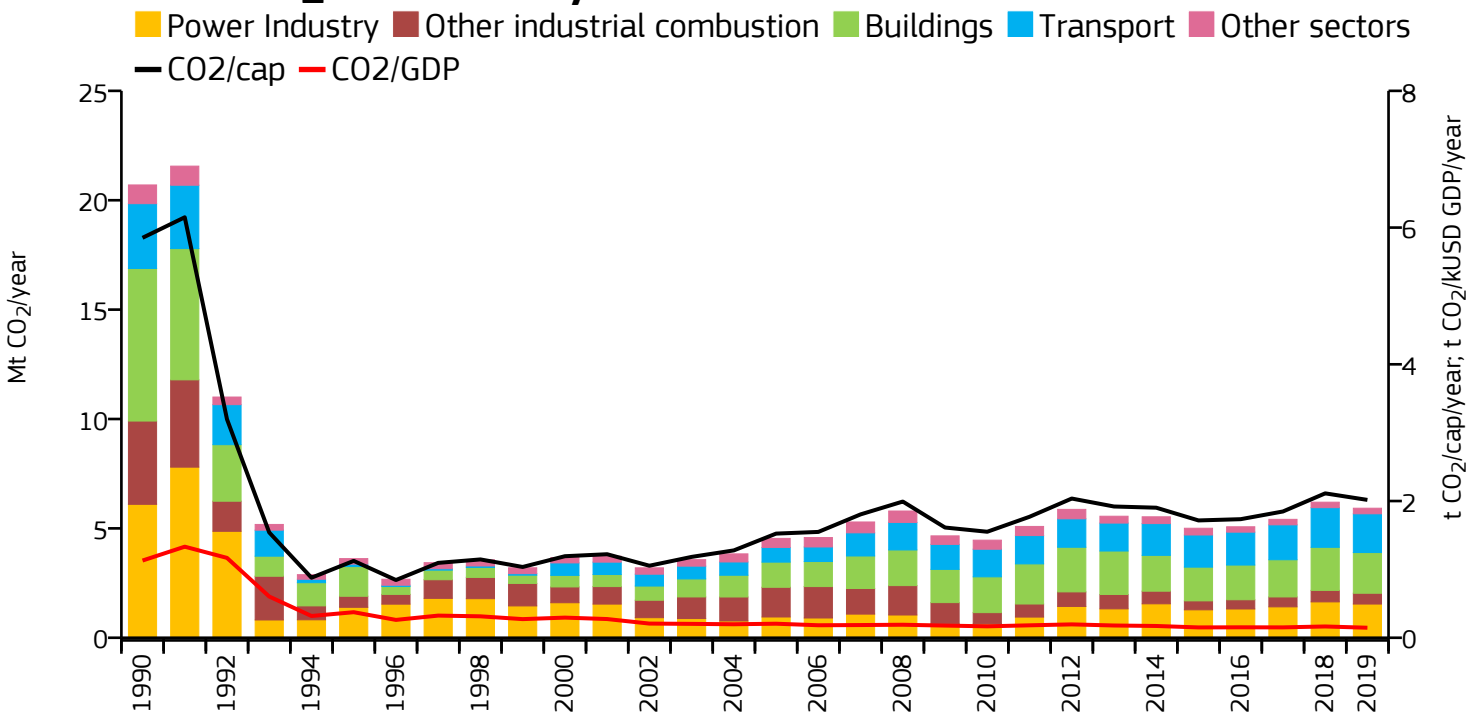
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	199.414	4.421	0.201	45.102M
2018	204.921	4.586	0.202	44.689M
2005	165.758	4.234	0.219	39.145M
1990	108.122	3.303	0.234	32.730M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+153%	+57%	-5%
Other industrial combustion	+62%	+1%	-4%
Buildings	+68%	+19%	-2%
Transport	+45%	+4%	-2%
Other sectors	+169%	+44%	+3%
All sectors	+84%	+20%	-3%

Armenia

Fossil CO_2 emissions by sector



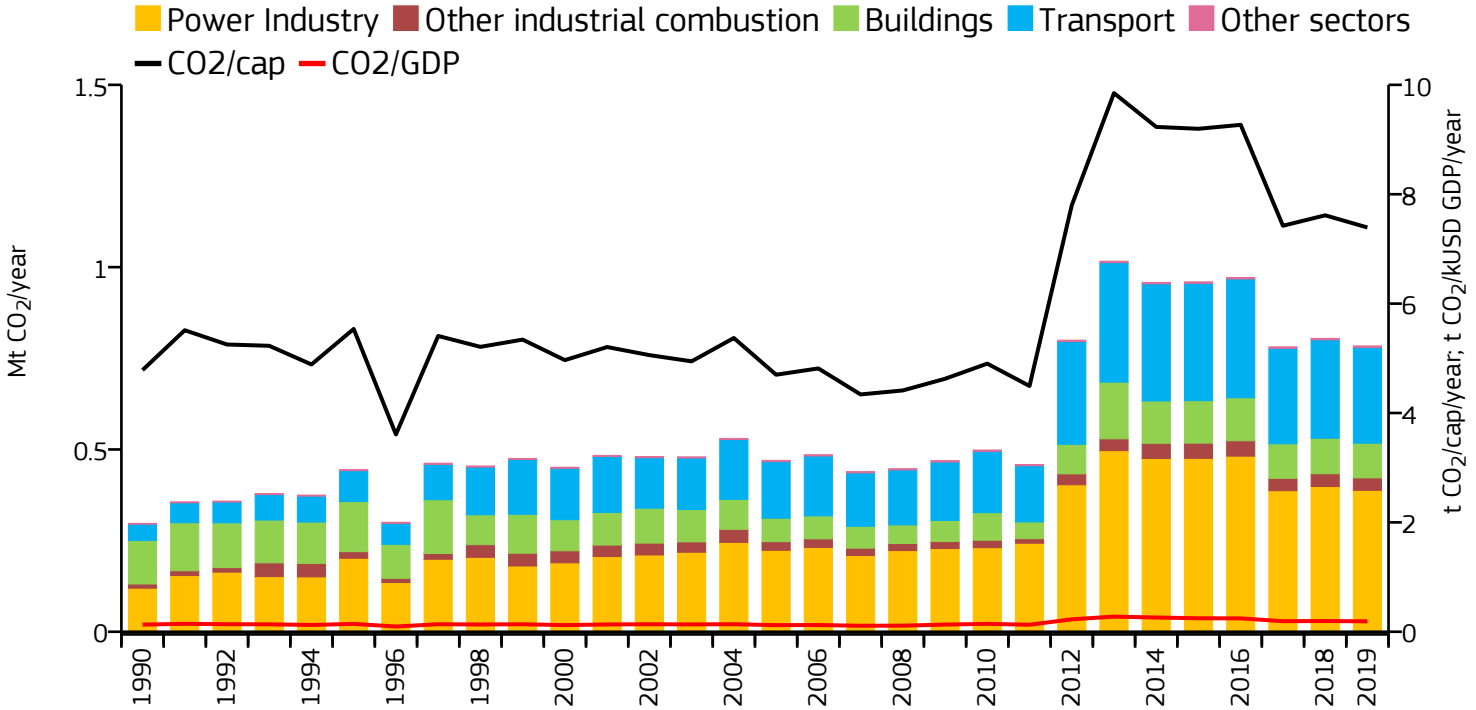
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5.922	2.017	0.147	2.937M
2018	6.197	2.112	0.165	2.934M
2005	4.542	1.523	0.205	2.981M
1990	20.699	5.850	1.129	3.538M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-75%	+62%	-6%
Other industrial combustion	-87%	-64%	-6%
Buildings	-73%	+62%	-6%
Transport	-40%	+164%	-2%
Other sectors	-70%	-38%	+2%
All sectors	-71%	+30%	-4%

Aruba

Fossil CO_2 emissions by sector



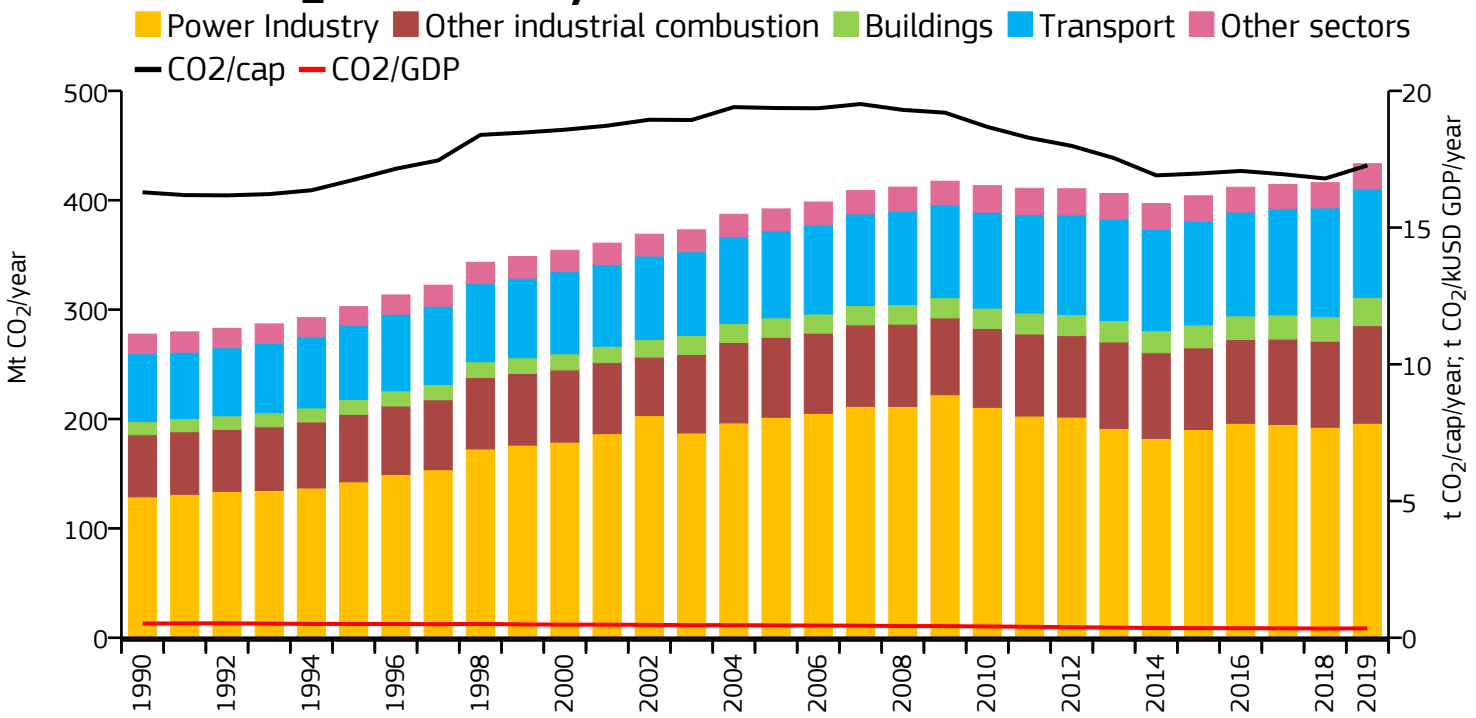
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.784	7.392	0.190	106.053k
2018	0.805	7.615	0.196	105.670k
2005	0.470	4.700	0.121	100.031k
1990	0.297	4.784	0.131	62.149k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+225%	+74%	-3%
Other industrial combustion	+198%	+44%	-3%
Buildings	-20%	+48%	-2%
Transport	+485%	+69%	-3%
Other sectors	+89%	+23%	+2%
All sectors	+164%	+67%	-3%

Australia

Fossil CO_2 emissions by sector



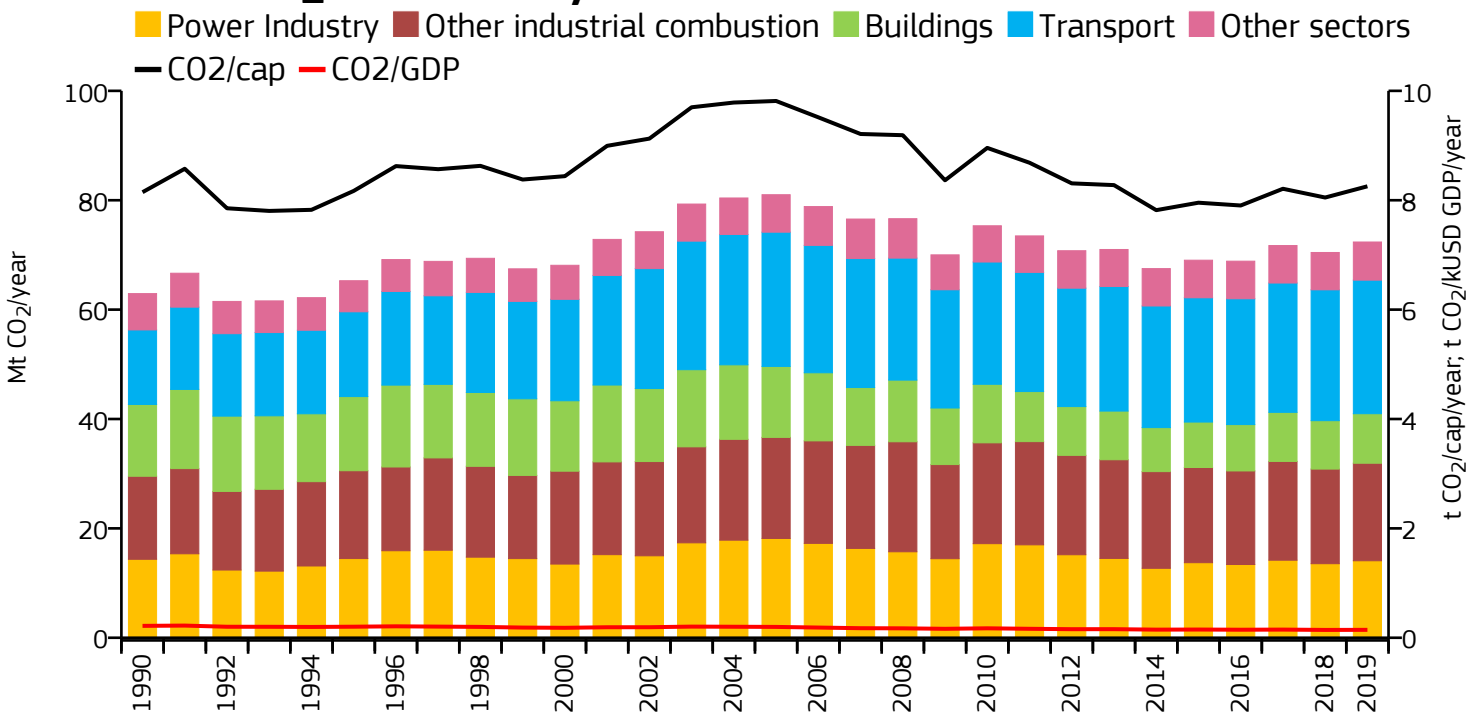
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	433.379	17.274	0.343	25.089M
2018	416.049	16.795	0.336	24.772M
2005	392.060	19.372	0.452	20.239M
1990	277.610	16.290	0.520	17.041M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+52%	-3%	+2%
Other industrial combustion	+57%	+22%	+13%
Buildings	+116%	+46%	+16%
Transport	+59%	+25%	-1%
Other sectors	+30%	+15%	+1%
All sectors	+56%	+11%	+4%

Austria

Fossil CO_2 emissions by sector



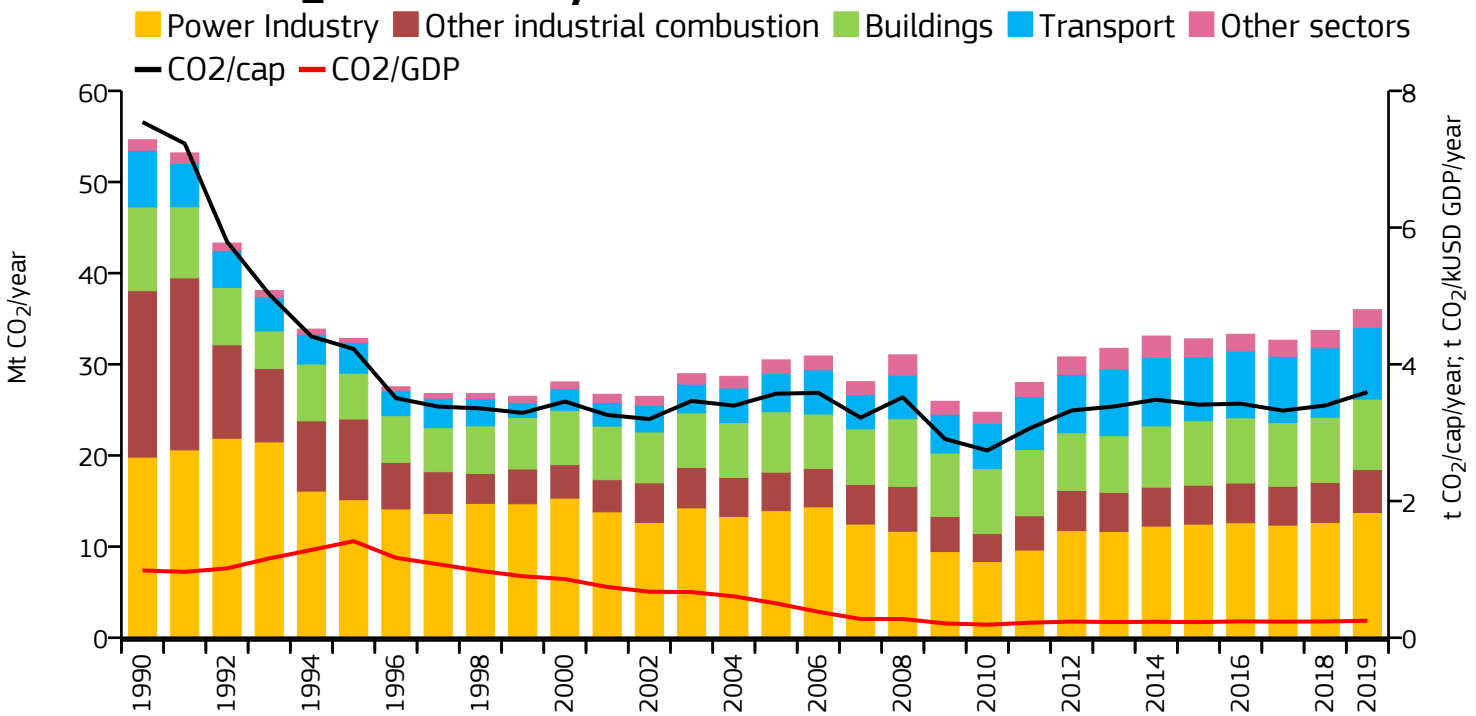
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	72.363	8.255	0.145	8.766M
2018	70.447	8.049	0.143	8.752M
2005	81.009	9.815	0.198	8.254M
1990	62.927	8.147	0.217	7.724M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	→	-2%	↘	-22%	→	+4%
Other industrial combustion	↗	+17%	→	-3%	→	+3%
Buildings	↘	-31%	↘	-30%	→	+2%
Transport	↗	+79%	→	-1%	→	+2%
Other sectors	→	+5%	→	+2%	→	+2%
All sectors	↗	+15%	↘	-11%	→	+3%

Azerbaijan

Fossil CO_2 emissions by sector



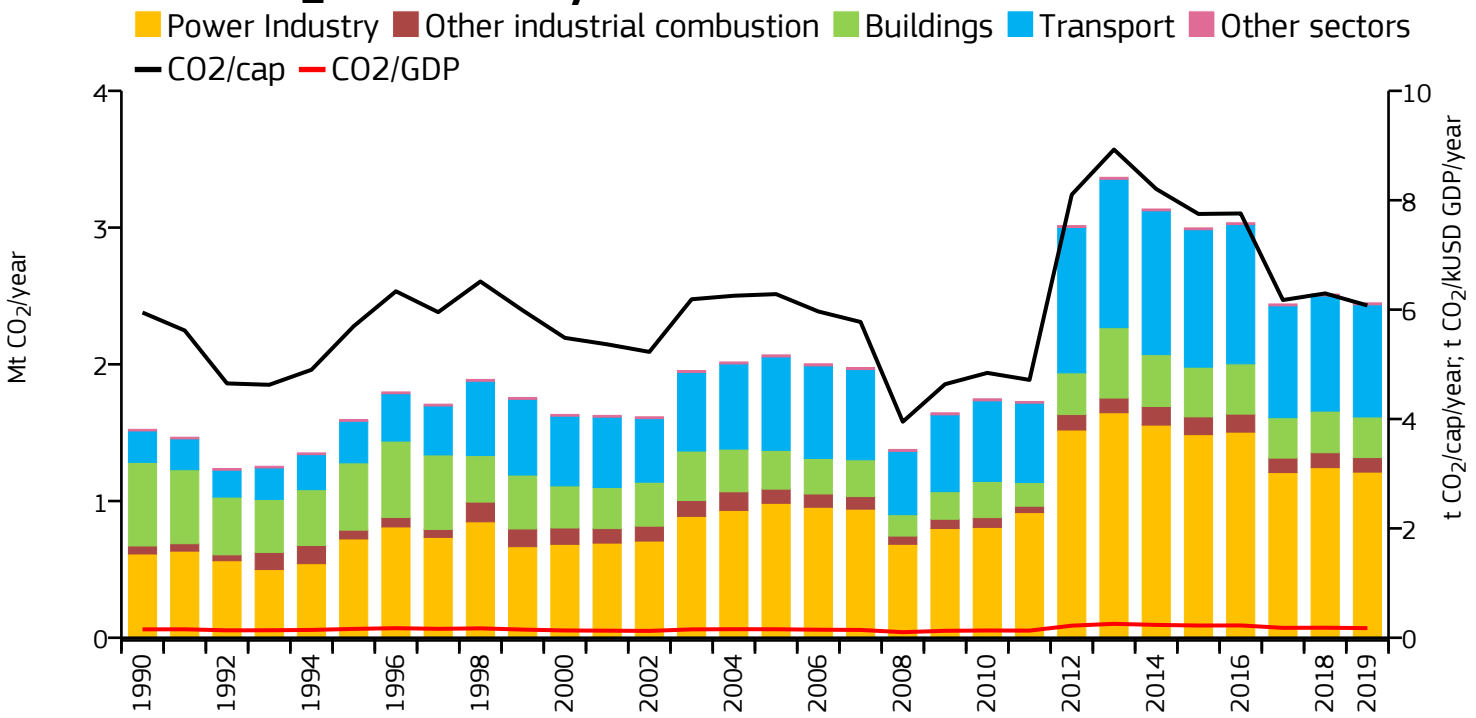
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	35.984	3.593	0.249	10.015M
2018	33.716	3.397	0.239	9.924M
2005	30.486	3.570	0.503	8.539M
1990	54.633	7.543	0.984	7.243M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-31%	-1%	+9%
Other industrial combustion	-74%	+11%	+7%
Buildings	-16%	+17%	+8%
Transport	+27%	+86%	+3%
Other sectors	+68%	+32%	+2%
All sectors	-34%	+18%	+7%

Bahamas

Fossil CO_2 emissions by sector

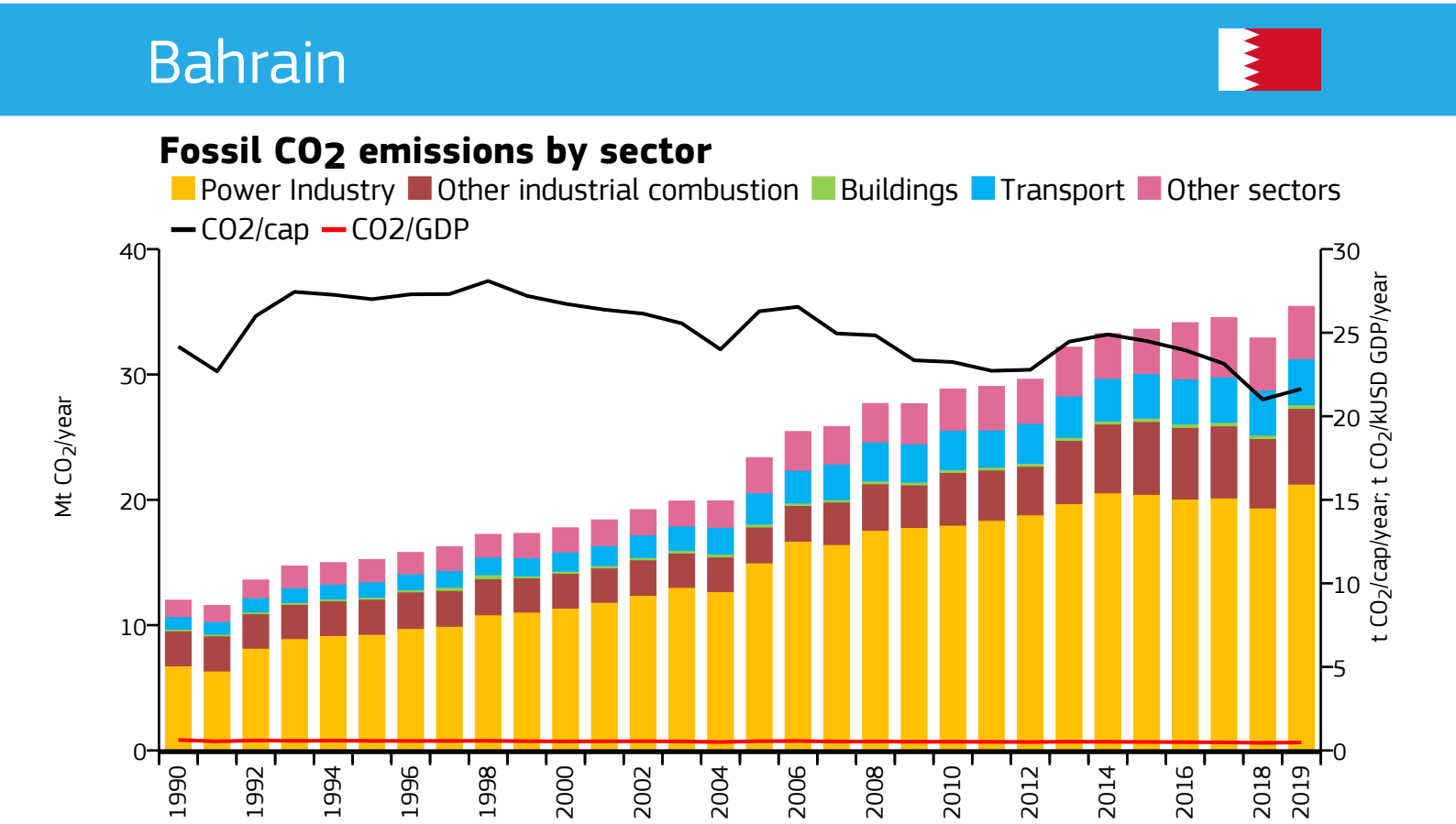


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.449	6.076	0.176	403.095k
2018	2.514	6.296	0.184	399.285k
2005	2.069	6.283	0.156	329.249k
1990	1.524	5.947	0.154	256.336k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+98%	+23%	-3%
Other industrial combustion	+82%	+2%	-3%
Buildings	-51%	+5%	-2%
Transport	+257%	+20%	-3%
Other sectors	+22%	-4%	+2%
All sectors	+61%	+18%	-3%

Bahrain

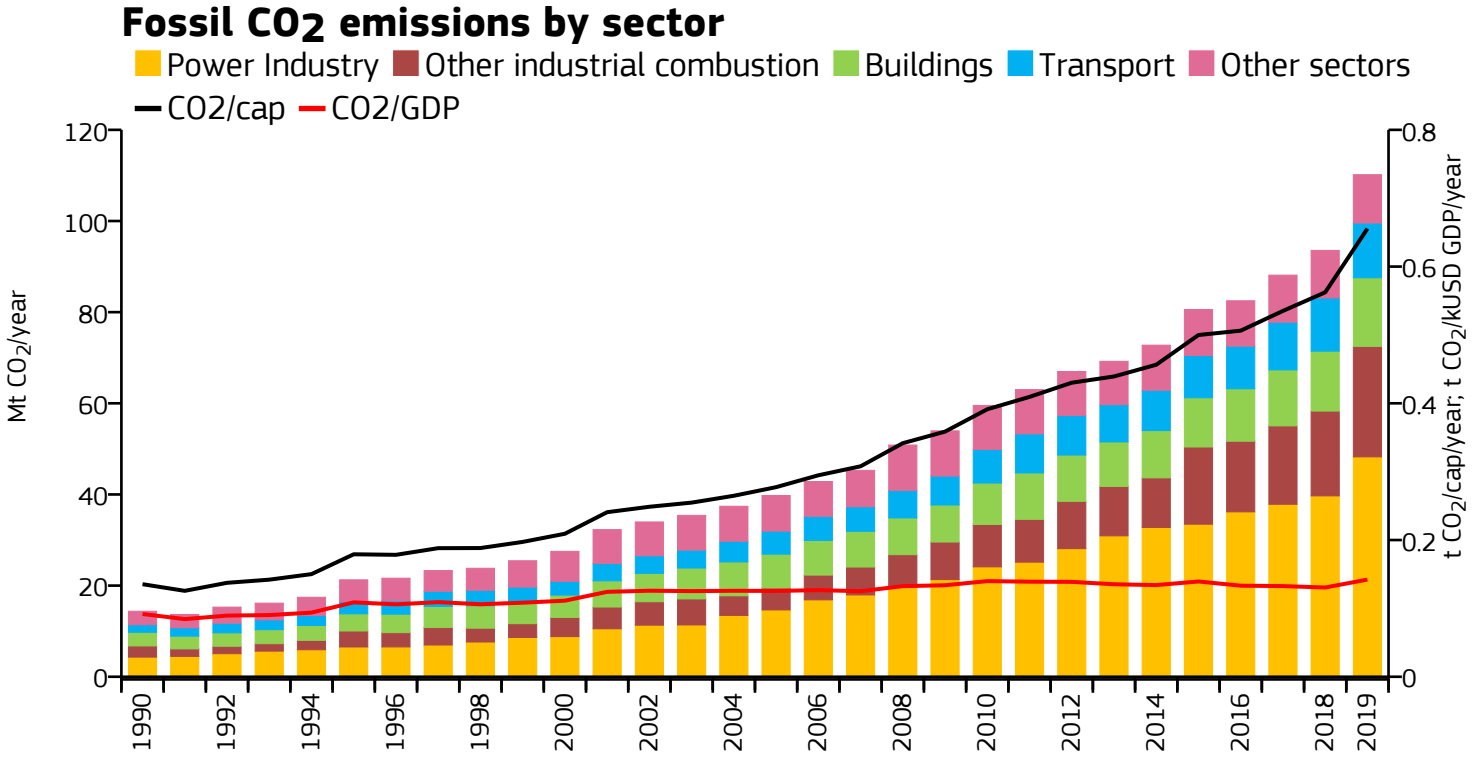


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	35.438	21.637	0.480	1.638M
2018	32.912	21.003	0.453	1.567M
2005	23.370	26.283	0.553	889.168k
1990	11.988	24.173	0.626	495.931k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+215%	+42%	+10%
Other industrial combustion	+115%	+111%	+9%
Buildings	+125%	+21%	+3%
Transport	+267%	+47%	+3%
Other sectors	+220%	+49%	0%
All sectors	+196%	+52%	+8%

Bangladesh



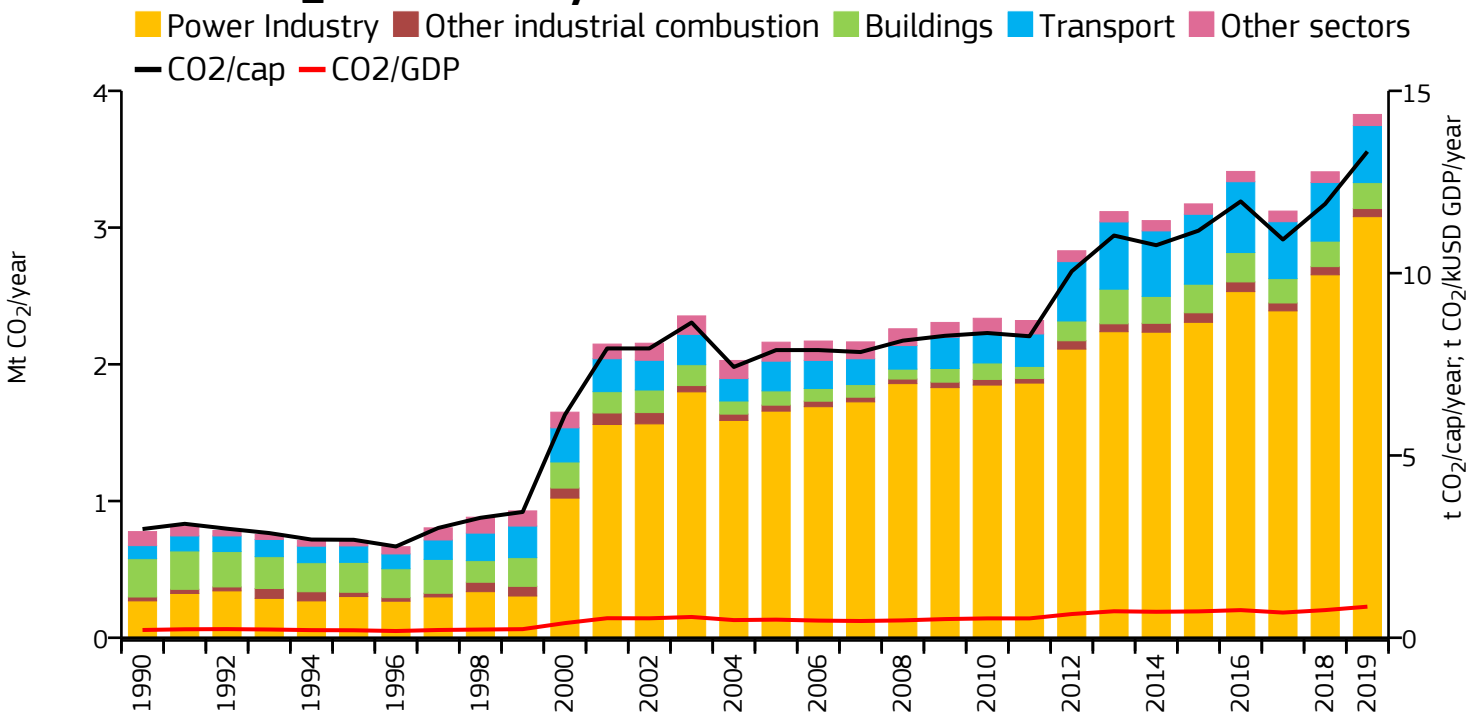
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	110.164	0.655	0.142	168.066M
2018	93.555	0.562	0.131	166.368M
2005	39.780	0.277	0.126	143.431M
1990	14.378	0.135	0.092	106.189M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1019%	+229%	+22%
Other industrial combustion	+891%	+404%	+30%
Buildings	+402%	+103%	+14%
Transport	+620%	+138%	+3%
Other sectors	+259%	+36%	+2%
All sectors	+666%	+177%	+18%

Barbados

Fossil CO_2 emissions by sector



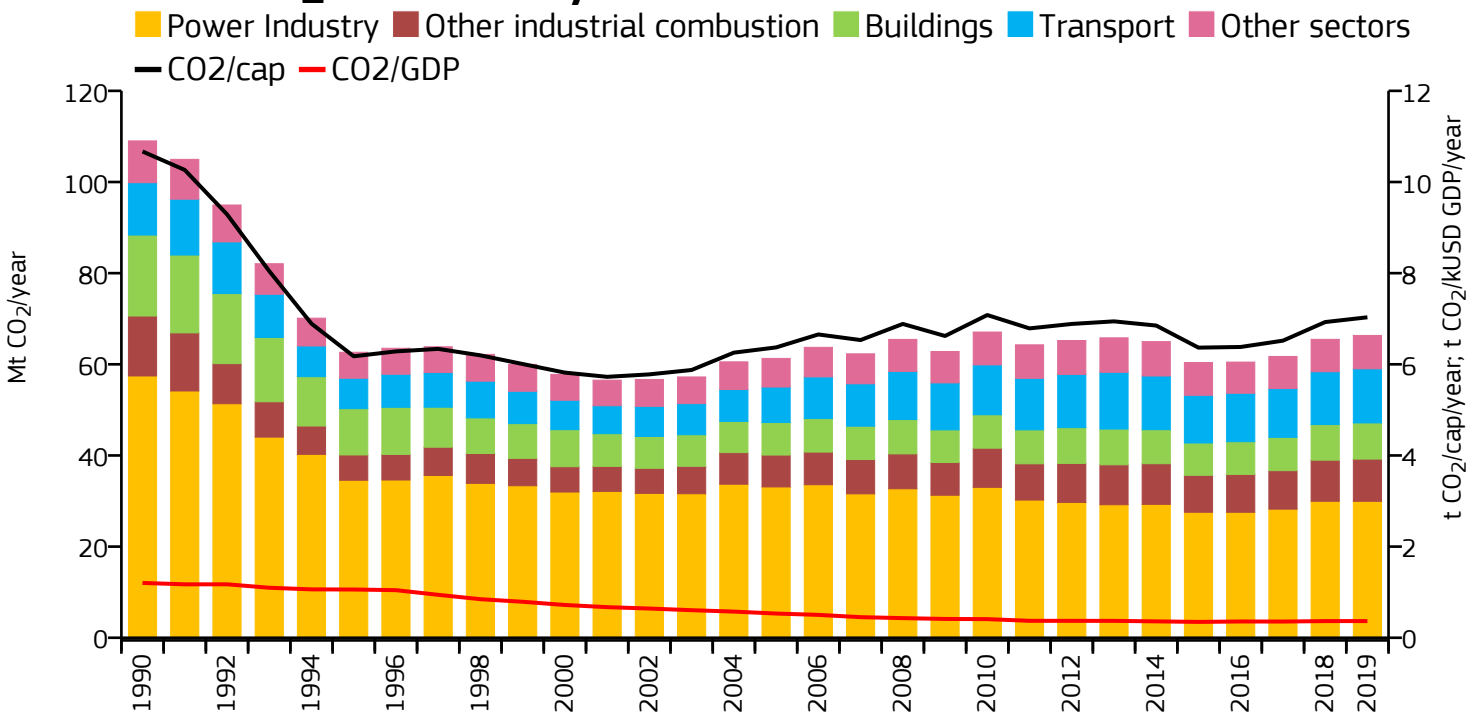
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.827	13.335	0.853	287.010k
2018	3.408	11.900	0.758	286.388k
2005	2.162	7.890	0.497	274.009k
1990	0.776	2.982	0.213	260.374k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1041%	+86%	+16%
Other industrial combustion	+111%	+35%	-1%
Buildings	-32%	+82%	+2%
Transport	+338%	+92%	-3%
Other sectors	-21%	-42%	+3%
All sectors	+393%	+77%	+12%

Belarus

Fossil CO_2 emissions by sector



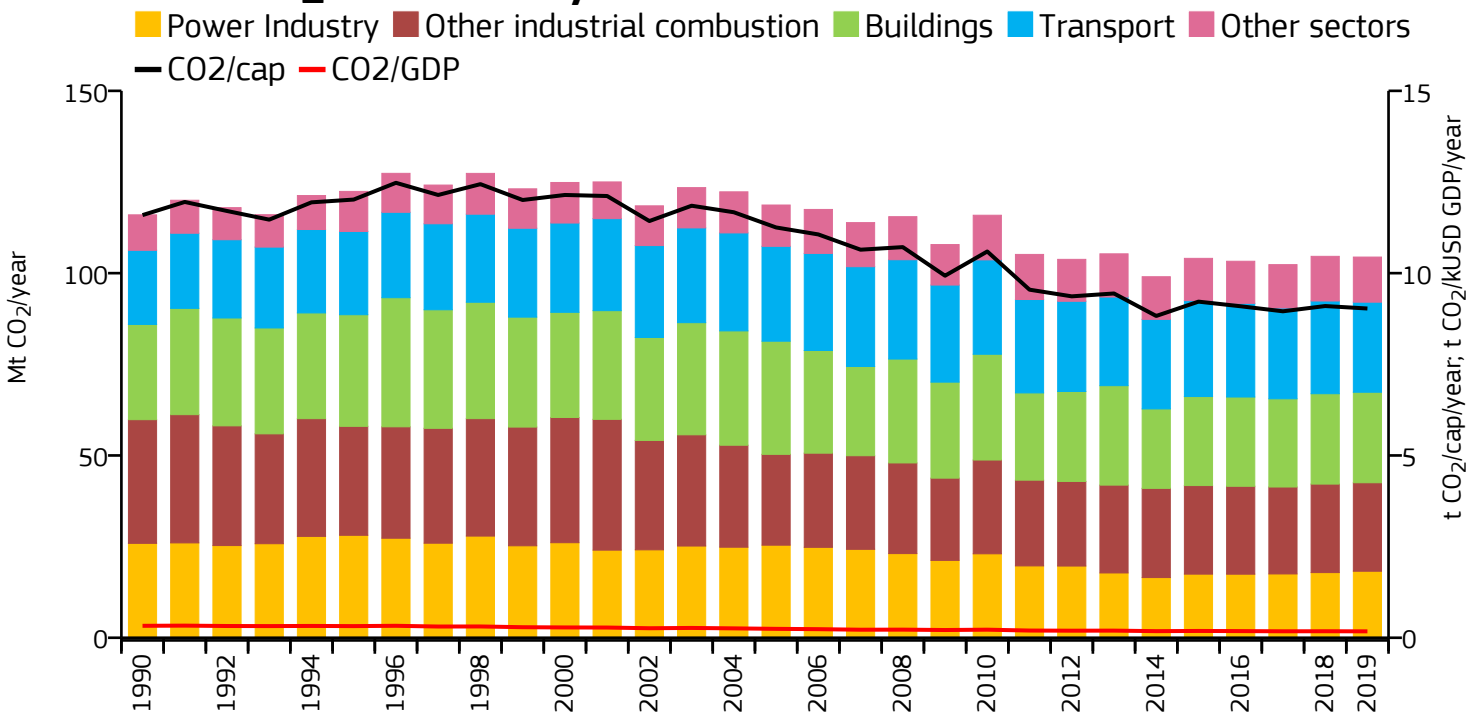
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	66.335	7.032	0.366	9.434M
2018	65.475	6.927	0.366	9.452M
2005	61.295	6.371	0.531	9.622M
1990	109.016	10.670	1.203	10.217M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-48%	-10%	0%
Other industrial combustion	-30%	+32%	+3%
Buildings	-55%	+11%	+2%
Transport	+3%	+53%	+2%
Other sectors	-20%	+17%	+3%
All sectors	-39%	+8%	+1%

Belgium

Fossil CO_2 emissions by sector



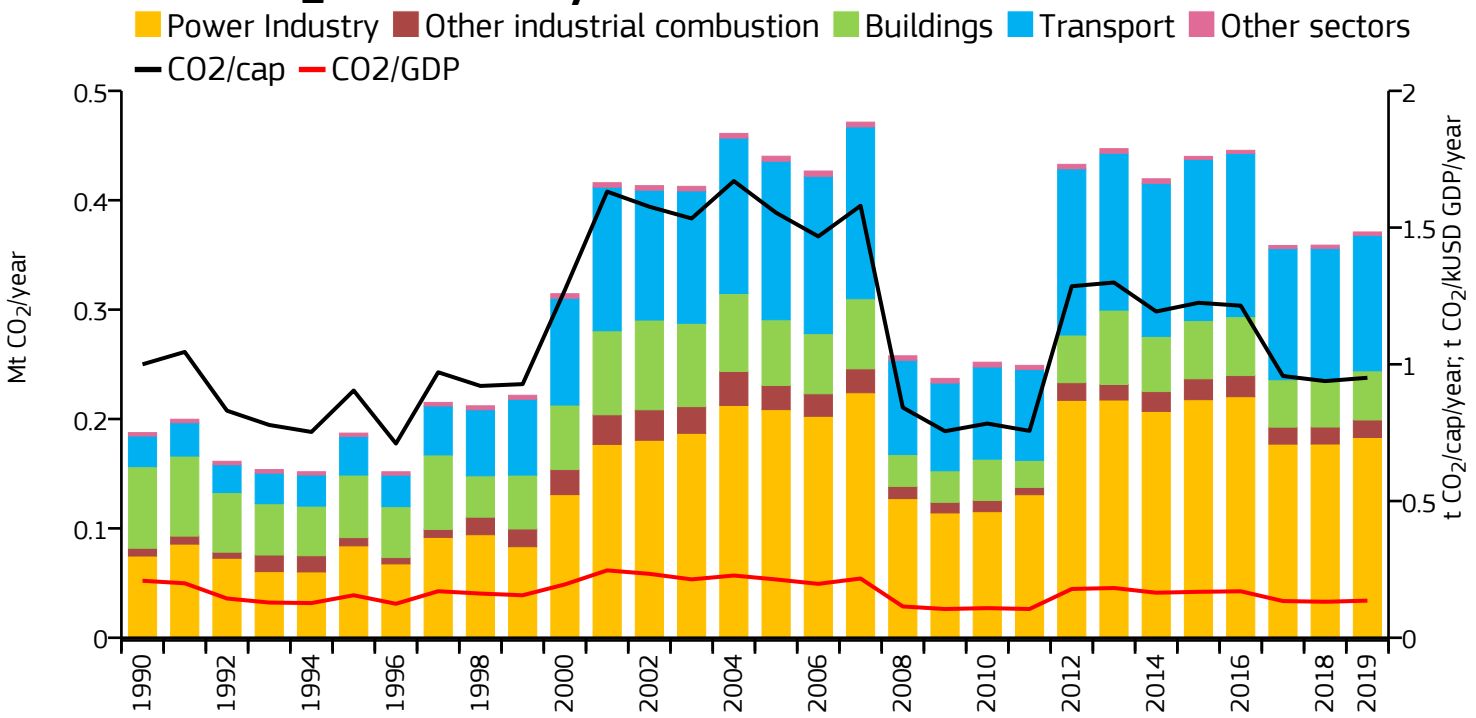
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	104.415	9.030	0.176	11.563M
2018	104.615	9.098	0.179	11.499M
2005	118.689	11.253	0.244	10.547M
1990	115.996	11.592	0.327	10.007M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-30%	↘	-28%	→	+2%
Other industrial combustion	↘	-28%	→	-3%	→	0%
Buildings	→	-5%	↘	-20%	→	0%
Transport	↗	+22%	→	-5%	→	-3%
Other sectors	↗	+27%	↗	+9%	→	+1%
All sectors	↘	-10%	↘	-12%	→	0%

Belize

Fossil CO_2 emissions by sector



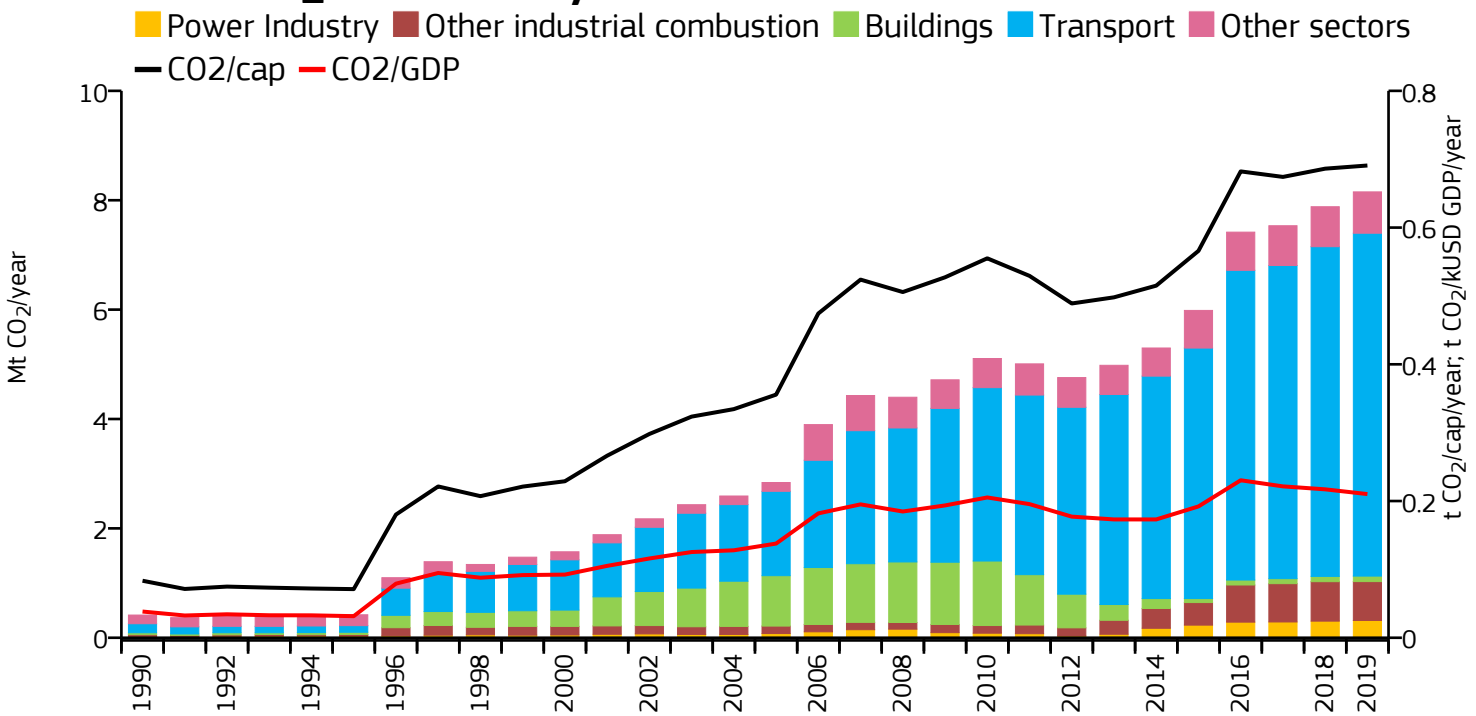
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.371	0.951	0.136	390.231k
2018	0.359	0.939	0.132	382.444k
2005	0.440	1.554	0.213	283.277k
1990	0.188	1.000	0.208	187.552k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+145%	-12%	+3%
Other industrial combustion	+125%	-27%	+3%
Buildings	-40%	-25%	+3%
Transport	+342%	-14%	+3%
Other sectors	-1%	-34%	+2%
All sectors	+98%	-16%	+3%

Benin

Fossil CO_2 emissions by sector



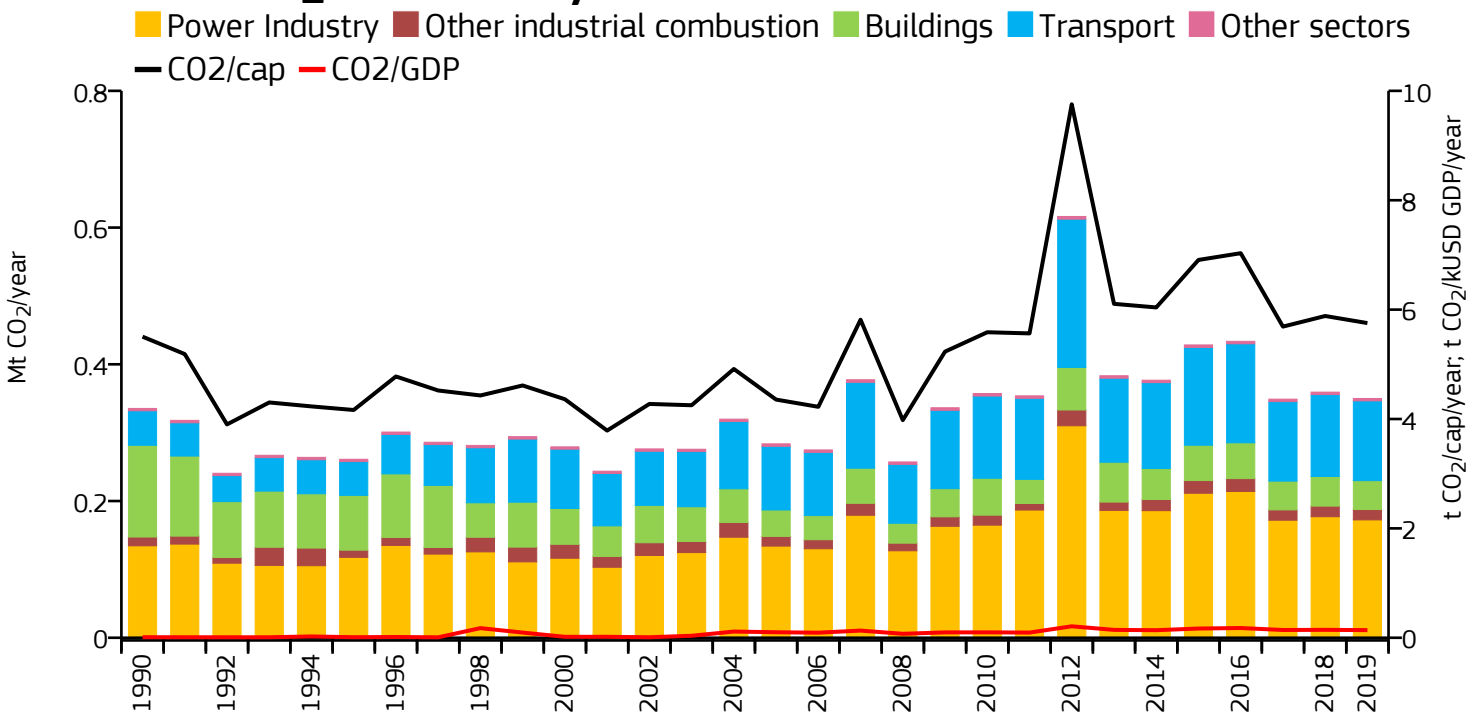
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	8.153	0.691	0.210	11.802M
2018	7.881	0.686	0.217	11.486M
2005	2.839	0.356	0.138	7.982M
1990	0.415	0.083	0.038	4.979M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +1142%	↗ +312%	→ +4%
Other industrial combustion	↗ +2184%	↗ +419%	→ -1%
Buildings	↗ +190%	↘ -89%	→ +4%
Transport	↗ +3695%	↗ +306%	→ +4%
Other sectors	↗ +376%	↗ +370%	→ +3%
All sectors	↗ +1863%	↗ +187%	→ +3%

Bermuda

Fossil CO_2 emissions by sector



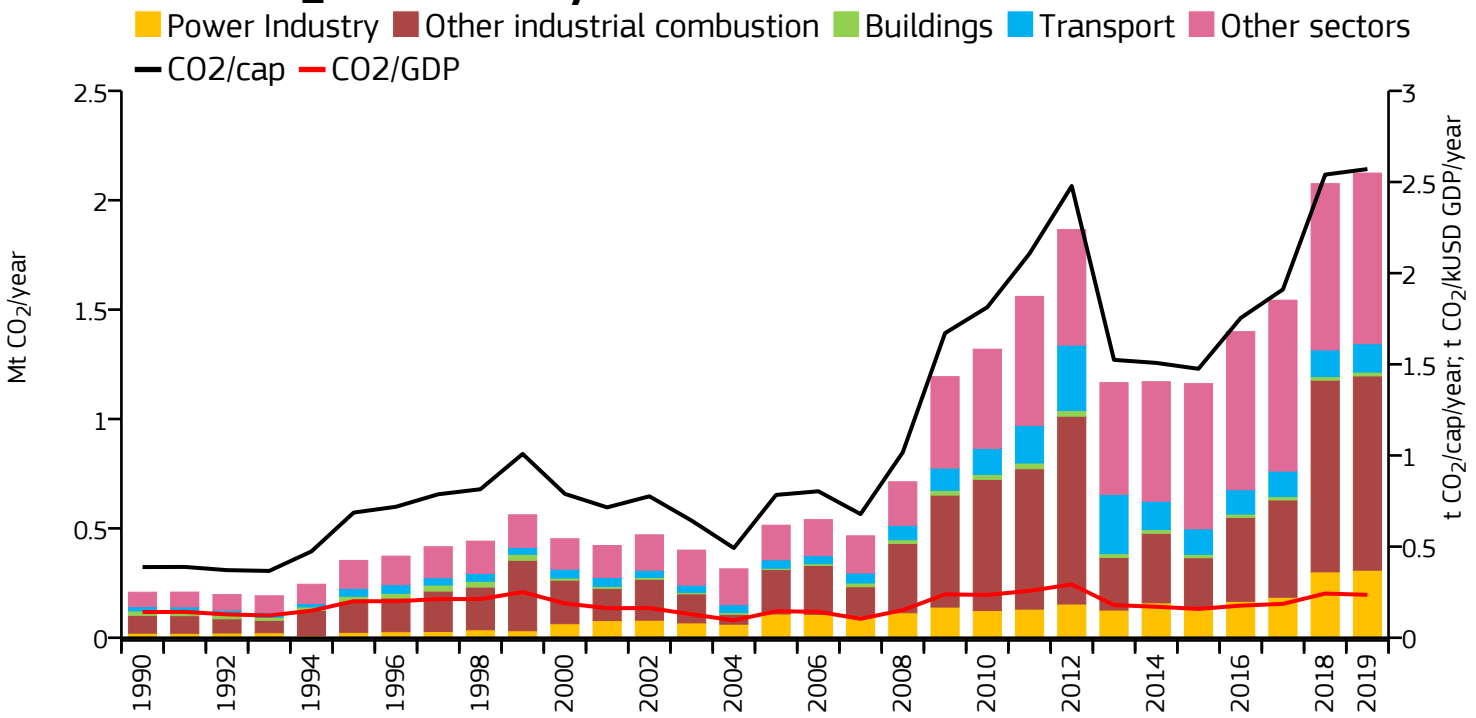
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.350	5.754	0.140	60.833k
2018	0.359	5.883	0.145	61.070k
2005	0.284	4.355	0.100	65.130k
1990	0.335	5.505	0.010	60.930k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+28%	+29%	-3%
Other industrial combustion	+18%	+7%	-3%
Buildings	-68%	+9%	-2%
Transport	+131%	+25%	-3%
Other sectors	+2%	-2%	-1%
All sectors	+4%	+23%	-3%

Bhutan

Fossil CO_2 emissions by sector



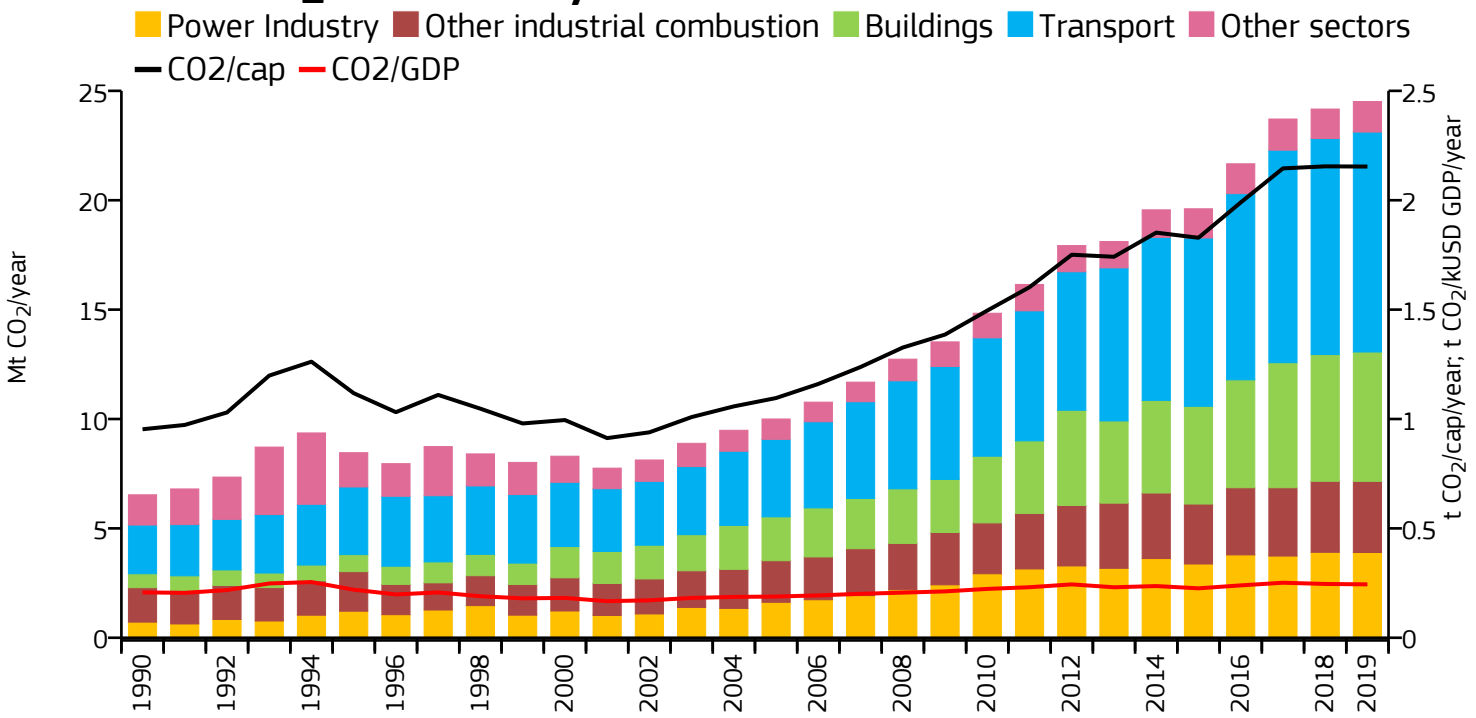
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.124	2.571	0.236	826.229k
2018	2.076	2.541	0.243	817.054k
2005	0.515	0.784	0.145	656.639k
1990	0.208	0.388	0.141	537.280k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1366%	+184%	+3%
Other industrial combustion	+990%	+337%	+1%
Buildings	-12%	+180%	+7%
Transport	+548%	+239%	+7%
Other sectors	+1083%	+393%	+3%
All sectors	+920%	+313%	+2%

Bolivia

Fossil CO_2 emissions by sector

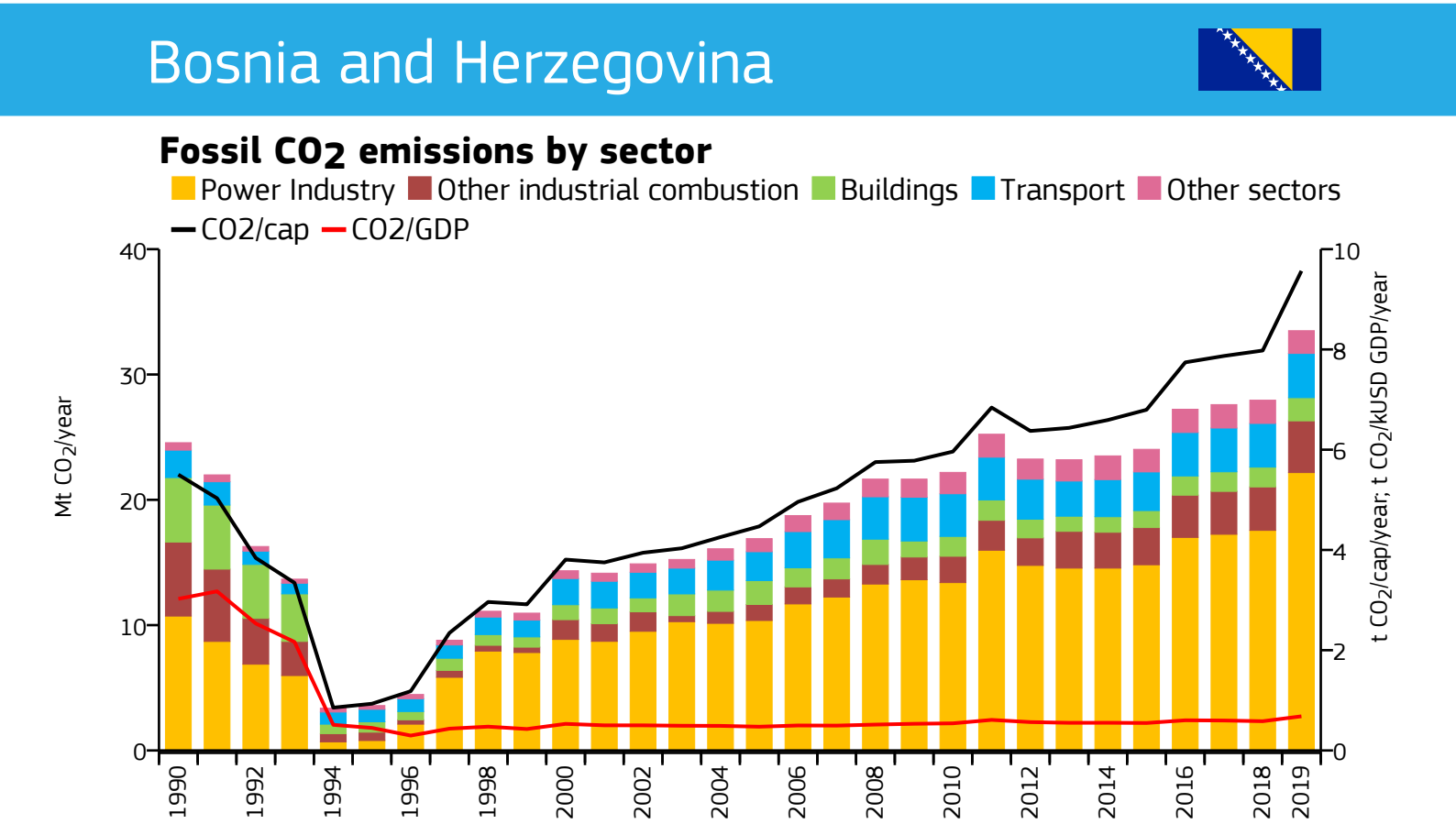


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	24.512	2.154	0.244	11.380M
2018	24.169	2.155	0.246	11.216M
2005	10.000	1.096	0.188	9.125M
1990	6.534	0.953	0.207	6.856M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+445%	+140%	0%
Other industrial combustion	+107%	+71%	0%
Buildings	+827%	+195%	+2%
Transport	+352%	+184%	+2%
Other sectors	+1%	+50%	+3%
All sectors	+275%	+145%	+1%

Bosnia and Herzegovina

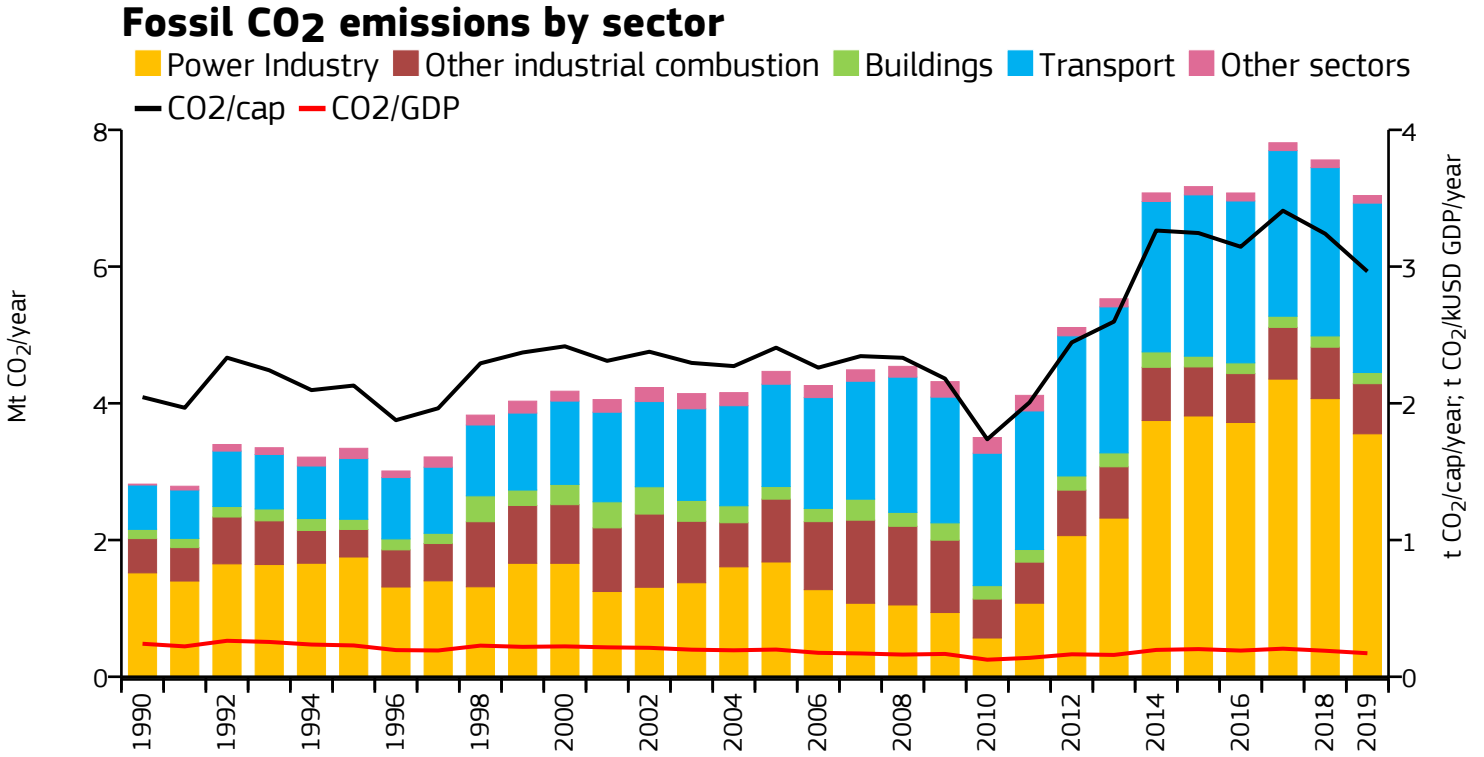


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	33.496	9.565	0.681	3.502M
2018	27.951	7.978	0.583	3.504M
2005	16.903	4.470	0.474	3.782M
1990	24.559	5.502	3.024	4.463M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+107%	+114%	+26%
Other industrial combustion	-30%	+223%	+19%
Buildings	-64%	-3%	+17%
Transport	+61%	+53%	+1%
Other sectors	+206%	+74%	-2%
All sectors	+36%	+98%	+20%

Botswana



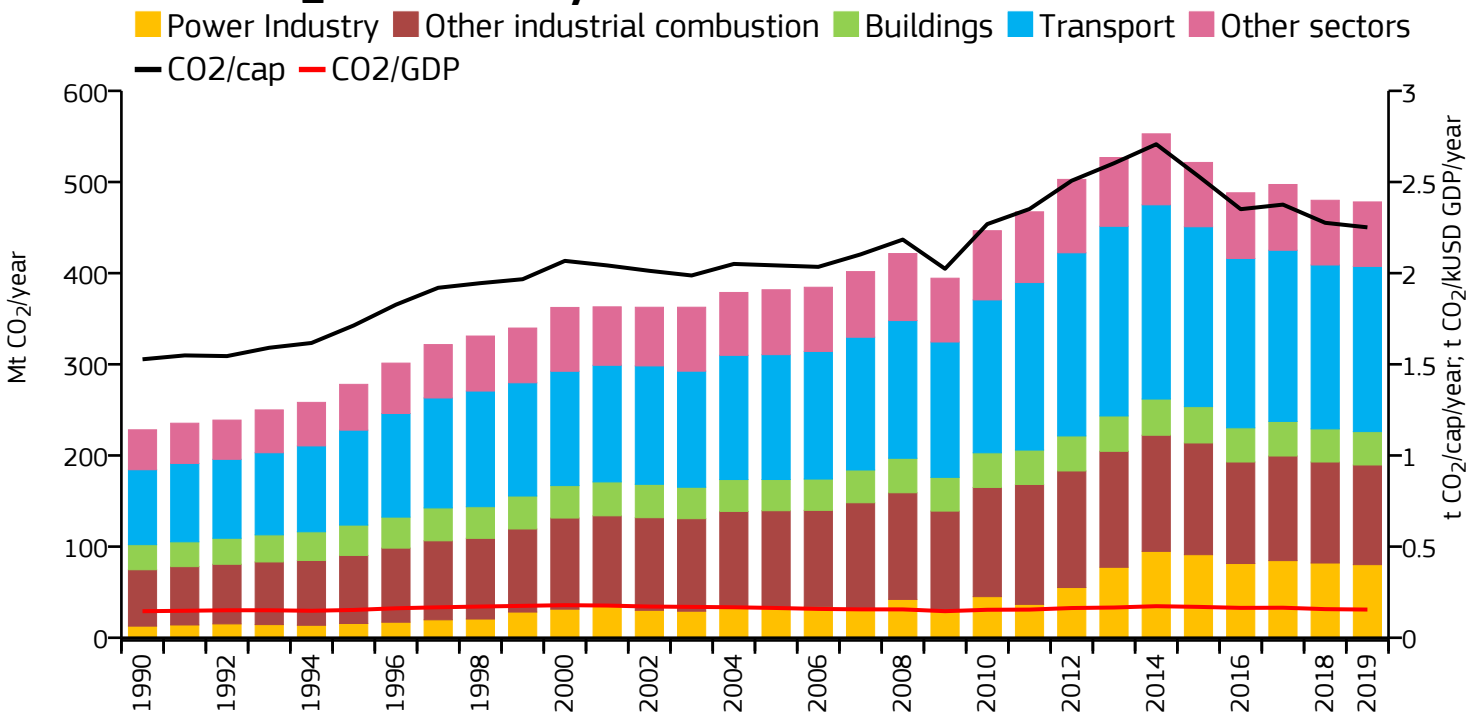
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.039	2.964	0.172	2.375M
2018	7.560	3.240	0.190	2.333M
2005	4.467	2.407	0.199	1.856M
1990	2.818	2.045	0.241	1.378M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+134%	+112%	-13%
Other industrial combustion	+46%	-20%	-3%
Buildings	+21%	-11%	-1%
Transport	+282%	+66%	+1%
Other sectors	+734%	-41%	-1%
All sectors	+150%	+58%	-7%

Brazil

Fossil CO_2 emissions by sector



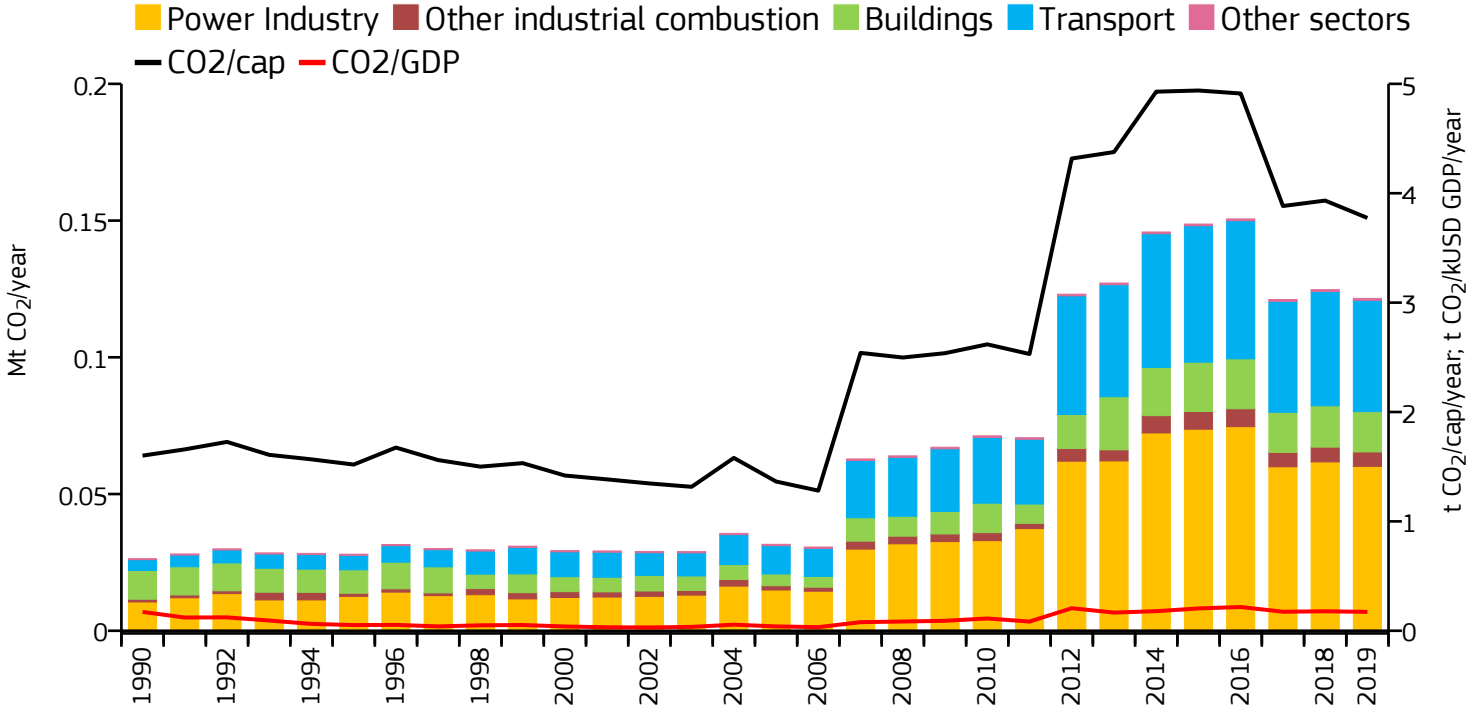
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	478.147	2.251	0.155	212.393M
2018	479.969	2.276	0.157	210.868M
2005	381.780	2.043	0.163	186.917M
1990	228.138	1.528	0.146	149.352M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+529%	+134%	-2%
Other industrial combustion	+77%	+4%	-1%
Buildings	+33%	+7%	+1%
Transport	+121%	+32%	+1%
Other sectors	+61%	-1%	0%
All sectors	+110%	+25%	0%

British Virgin Islands

Fossil CO_2 emissions by sector

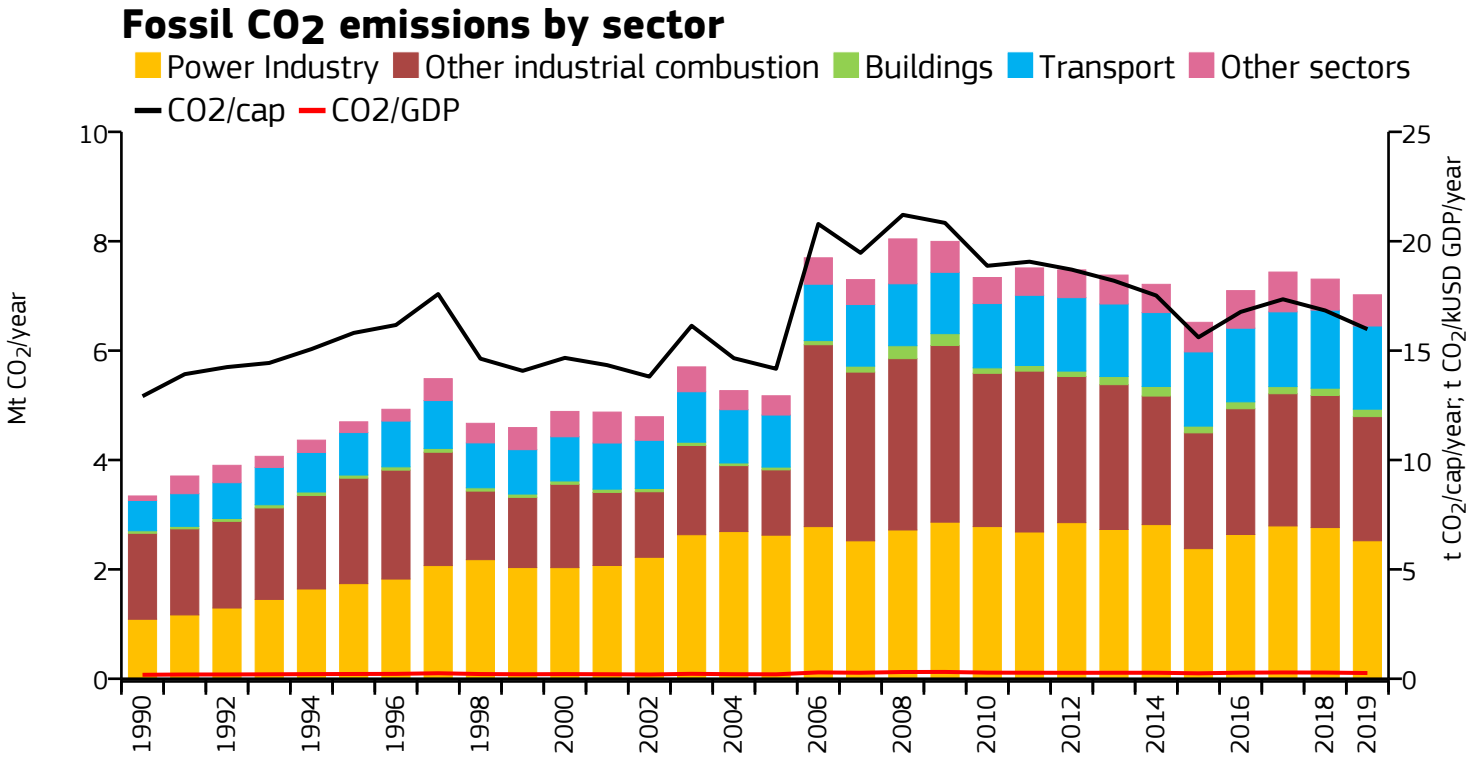


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.122	3.774	0.173	32.206k
2018	0.125	3.933	0.178	31.719k
2005	0.032	1.364	0.040	23.168k
1990	0.026	1.601	0.172	16.461k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+471%	+304%	-3%
Other industrial combustion	+425%	+235%	-3%
Buildings	+40%	+243%	-2%
Transport	+930%	+293%	-3%
Other sectors	+93%	+45%	+3%
All sectors	+361%	+285%	-3%

Brunei

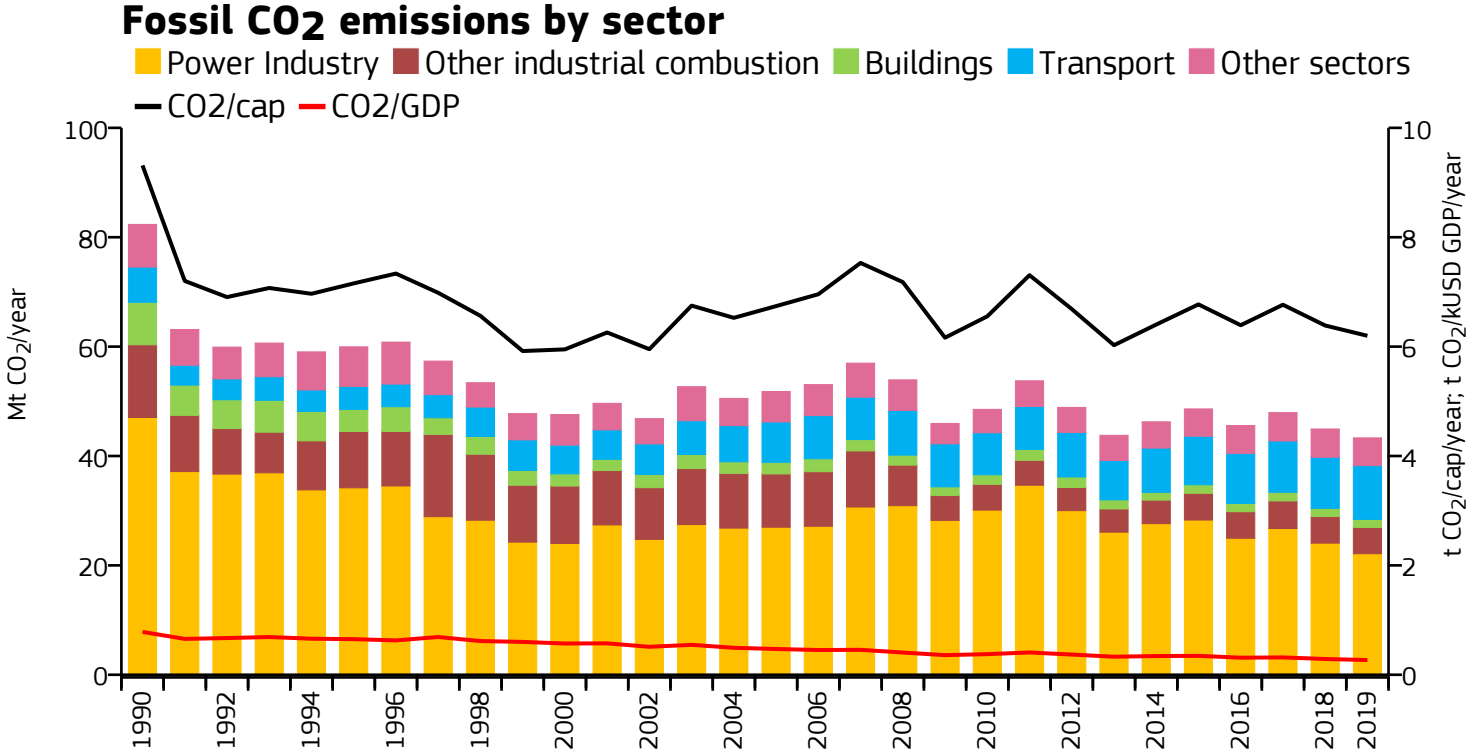


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.020	15.980	0.261	439.336k
2018	7.307	16.834	0.282	434.076k
2005	5.174	14.170	0.203	365.158k
1990	3.342	12.915	0.181	258.785k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+132%	-4%	-9%
Other industrial combustion	+44%	+90%	-6%
Buildings	+197%	+166%	+2%
Transport	+175%	+60%	+7%
Other sectors	+590%	+62%	+1%
All sectors	+110%	+36%	-4%

Bulgaria



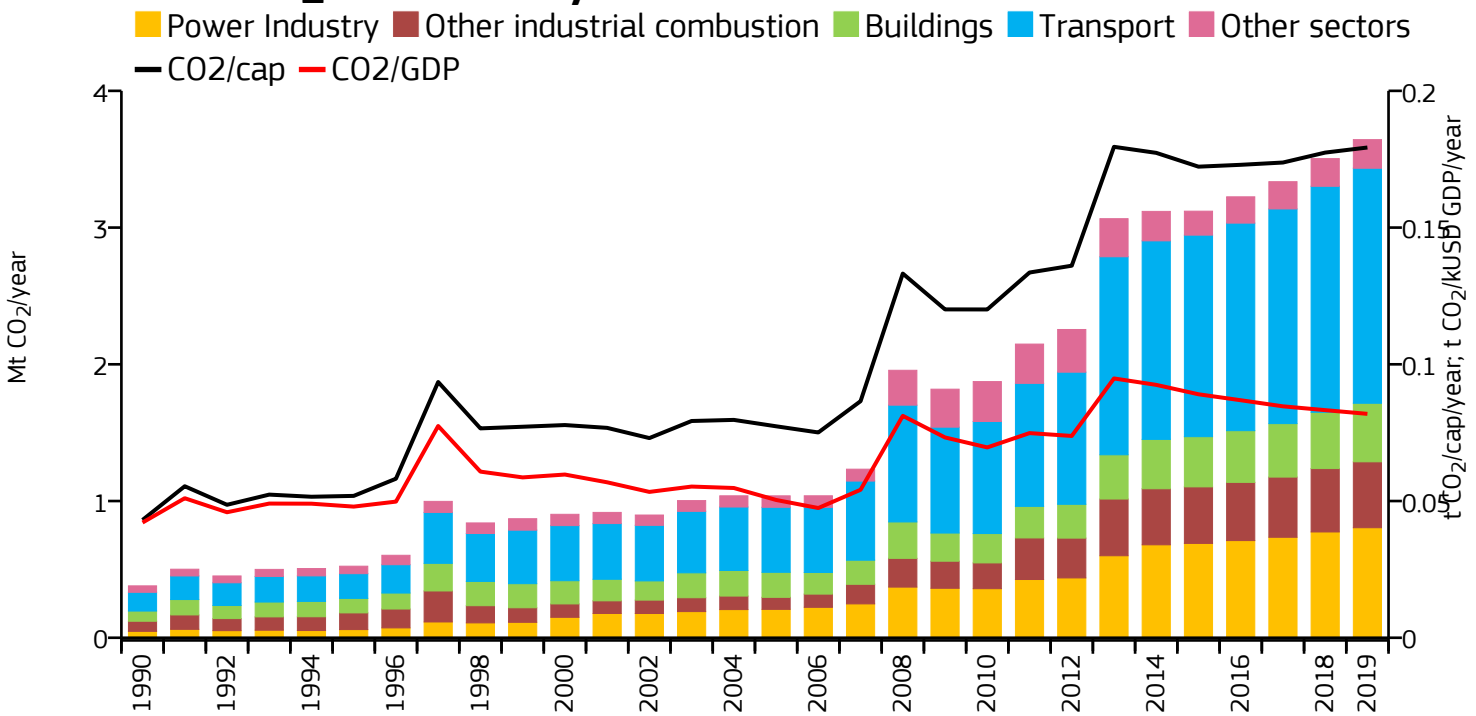
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	43.314	6.198	0.269	6.989M
2018	44.937	6.386	0.288	7.037M
2005	51.792	6.740	0.471	7.684M
1990	82.346	9.314	0.783	8.841M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-53%	-18%	-8%
Other industrial combustion	-64%	-51%	-1%
Buildings	-81%	-31%	-2%
Transport	+53%	+33%	+5%
Other sectors	-35%	-9%	-2%
All sectors	-47%	-16%	-4%

Burkina Faso

Fossil CO_2 emissions by sector

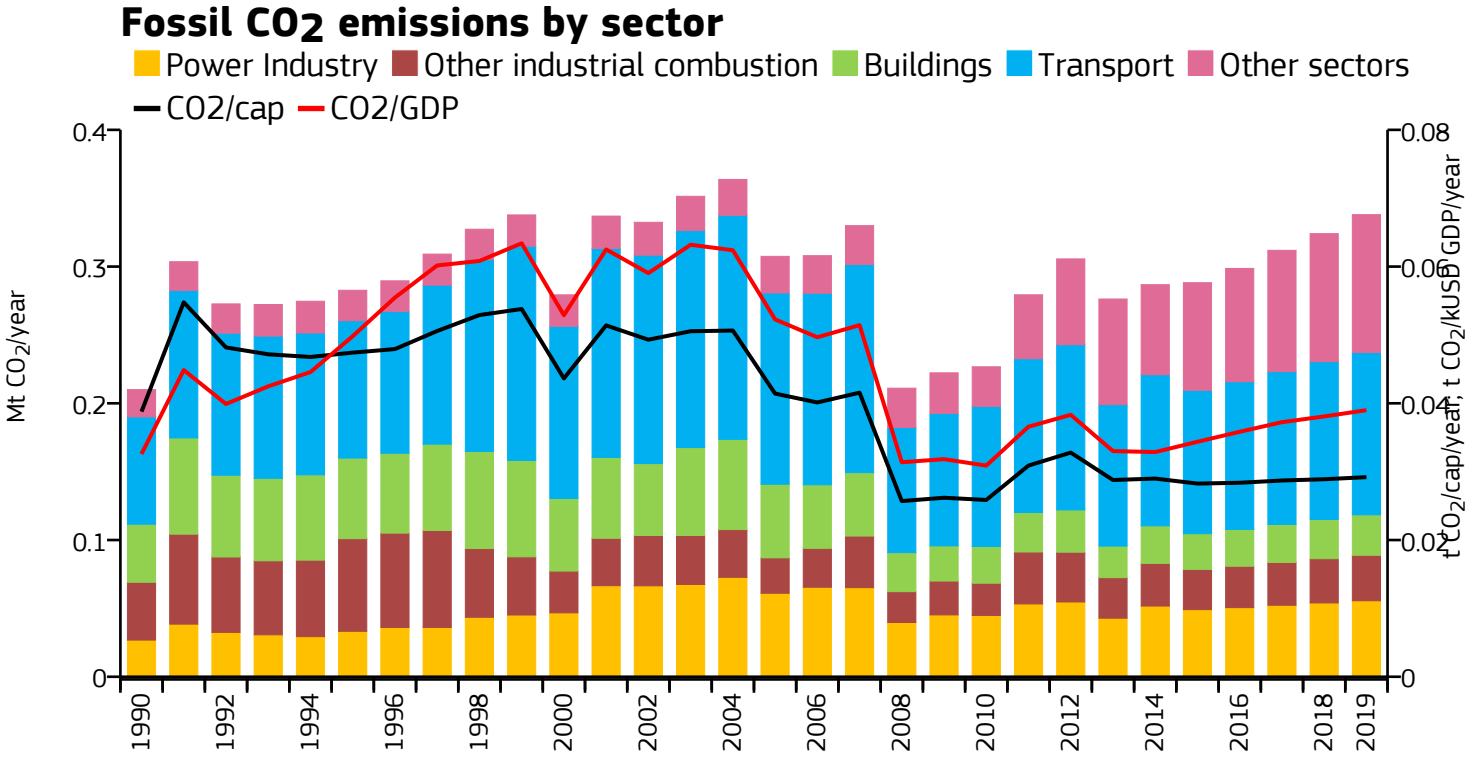


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.643	0.179	0.082	20.322M
2018	3.504	0.177	0.083	19.752M
2005	1.038	0.077	0.050	13.422M
1990	0.380	0.043	0.042	8.811M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1615%	+288%	+4%
Other industrial combustion	+551%	+448%	+4%
Buildings	+476%	+134%	+4%
Transport	+1152%	+261%	+4%
Other sectors	+345%	+150%	+3%
All sectors	+860%	+251%	+4%

Burundi



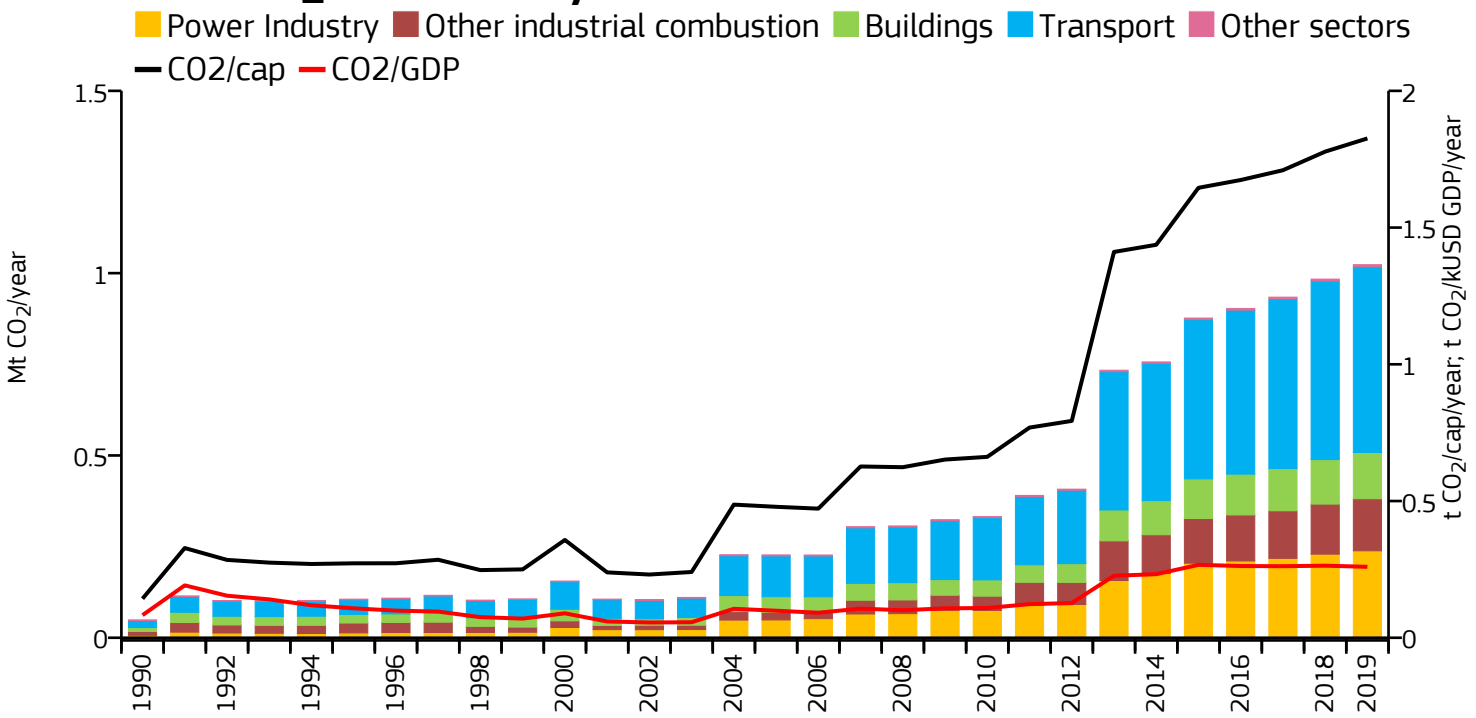
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.338	0.029	0.039	11.576M
2018	0.324	0.029	0.038	11.216M
2005	0.307	0.041	0.052	7.423M
1990	0.210	0.039	0.033	5.415M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+107%	-9%	+3%
Other industrial combustion	-21%	+29%	+3%
Buildings	-30%	-45%	+3%
Transport	+51%	-15%	+3%
Other sectors	+405%	+277%	+8%
All sectors	+61%	+10%	+4%

Cabo Verde

Fossil CO_2 emissions by sector



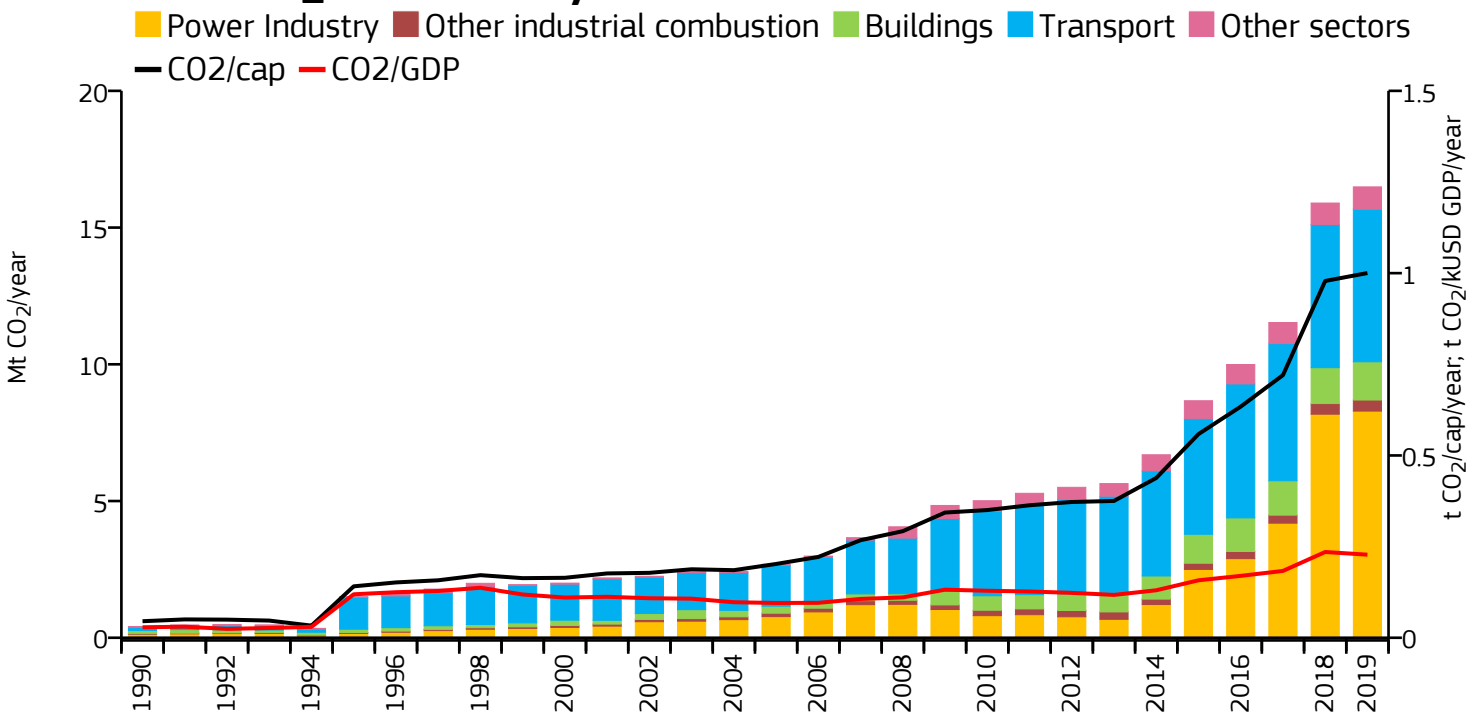
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.023	1.826	0.259	560.349k
2018	0.984	1.778	0.264	553.335k
2005	0.227	0.479	0.099	474.567k
1990	0.049	0.143	0.083	341.883k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+3457%	+388%	+4%
Other industrial combustion	+1251%	+590%	+4%
Buildings	+1095%	+195%	+4%
Transport	+2497%	+355%	+4%
Other sectors	+326%	+108%	+8%
All sectors	+1995%	+350%	+4%

Cambodia

Fossil CO_2 emissions by sector

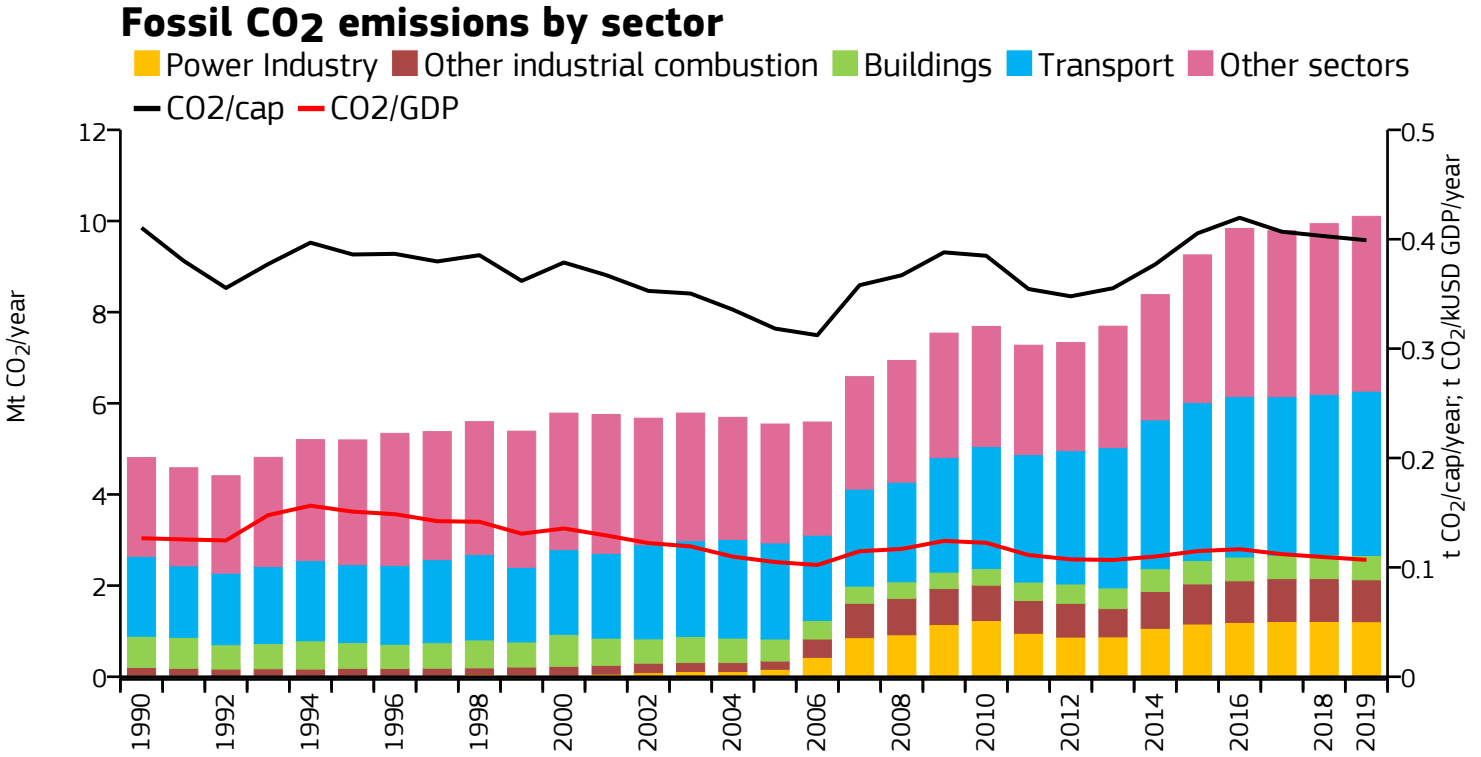


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	16.488	1.000	0.228	16.483M
2018	15.897	0.979	0.235	16.246M
2005	2.686	0.202	0.095	13.270M
1990	0.407	0.045	0.029	8.973M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +6456%	↗ +973%	→ +1%
Other industrial combustion	↗ +2109%	↗ +221%	→ +4%
Buildings	↗ +1077%	↗ +446%	↗ +7%
Transport	↗ +4550%	↗ +275%	↗ +7%
Other sectors	↗ +3388%	↗ +1789%	→ +4%
All sectors	↗ +3951%	↗ +514%	→ +4%

Cameroon



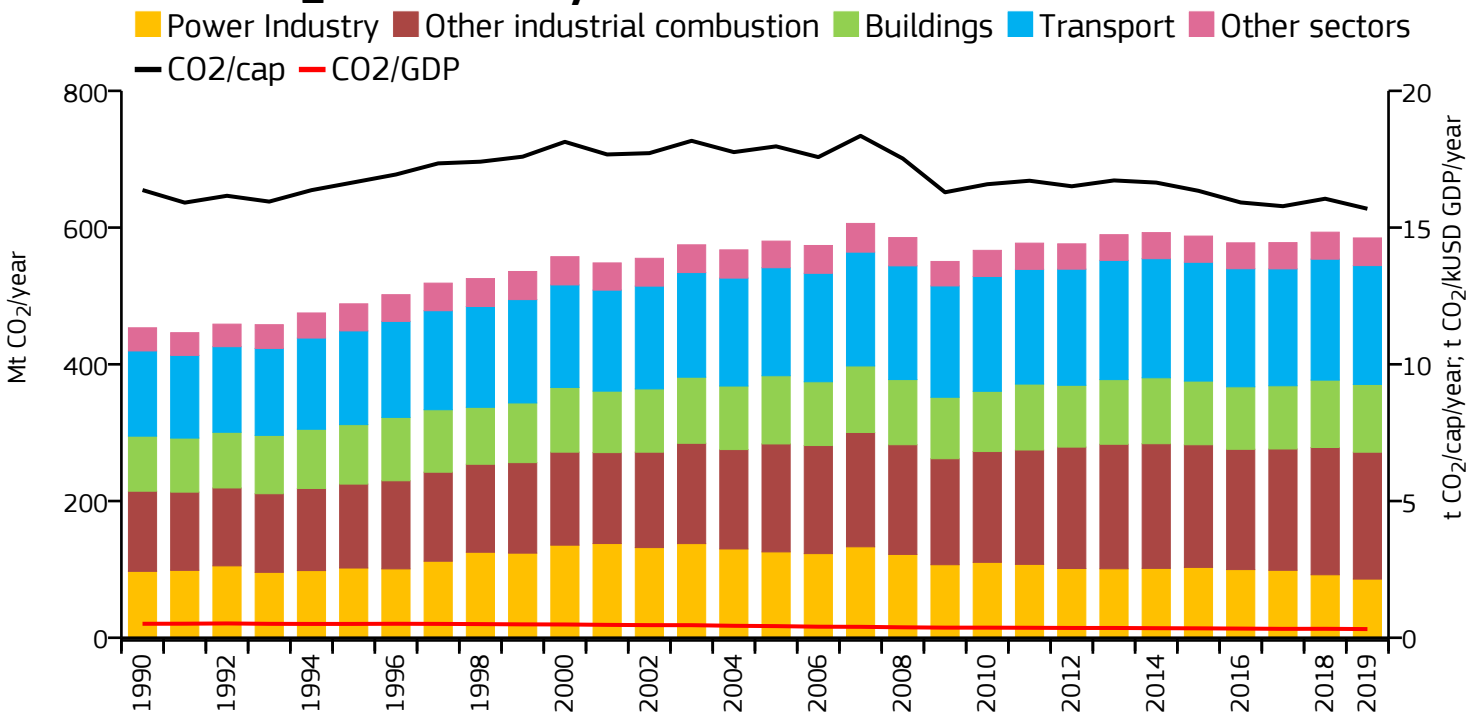
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	10.102	0.399	0.107	25.313M
2018	9.941	0.403	0.109	24.678M
2005	5.545	0.318	0.105	17.421M
1990	4.809	0.410	0.127	11.715M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+3325%	+638%	-1%
Other industrial combustion	+447%	+409%	-2%
Buildings	-22%	+10%	+2%
Transport	+105%	+71%	+2%
Other sectors	+77%	+47%	+2%
All sectors	+110%	+82%	+2%

Canada

Fossil CO_2 emissions by sector



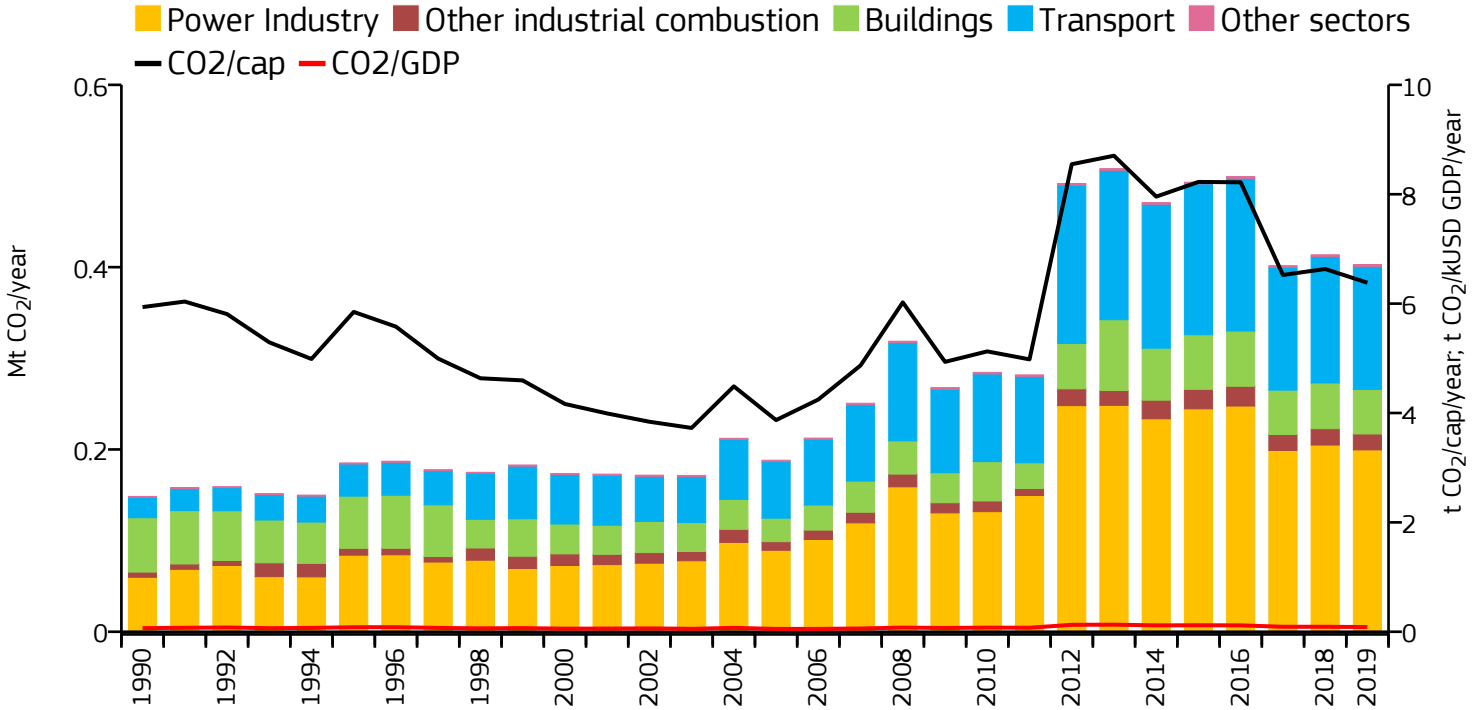
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	584.846	15.688	0.317	37.280M
2018	593.301	16.055	0.327	36.954M
2005	580.225	17.970	0.426	32.288M
1990	453.403	16.373	0.511	27.693M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-12%	-32%	-7%
Other industrial combustion	+58%	+18%	0%
Buildings	+23%	-1%	+1%
Transport	+39%	+10%	-2%
Other sectors	+20%	+4%	+2%
All sectors	+29%	+1%	-1%

Cayman Islands

Fossil CO_2 emissions by sector

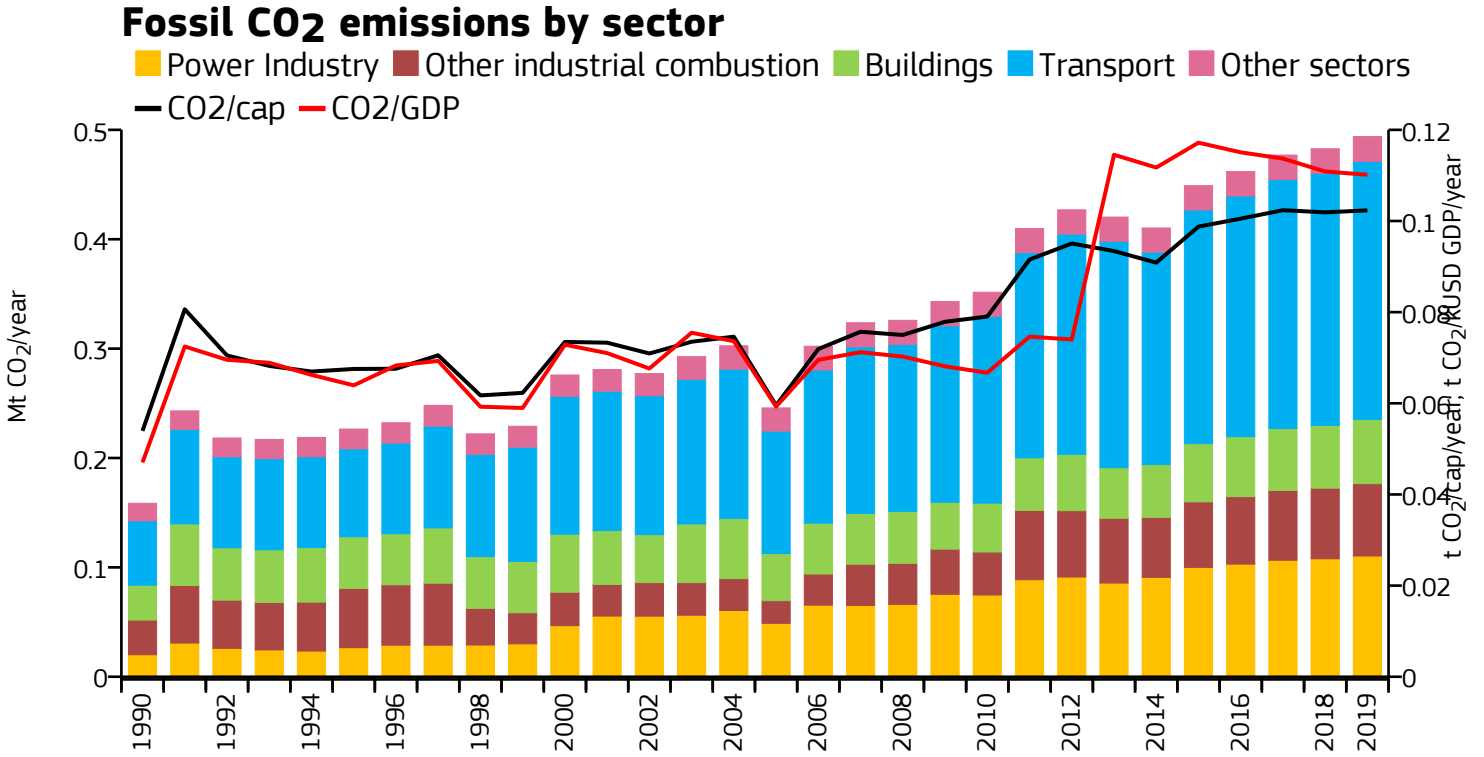


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.403	6.382	0.086	63.129k
2018	0.414	6.633	0.091	62.348k
2005	0.188	3.870	0.052	48.622k
1990	0.148	5.937	0.066	25.010k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+234%	+123%	-3%
Other industrial combustion	+207%	+85%	-3%
Buildings	-18%	+90%	-2%
Transport	+502%	+117%	-3%
Other sectors	+118%	+35%	+2%
All sectors	+171%	+114%	-3%

Central African Republic

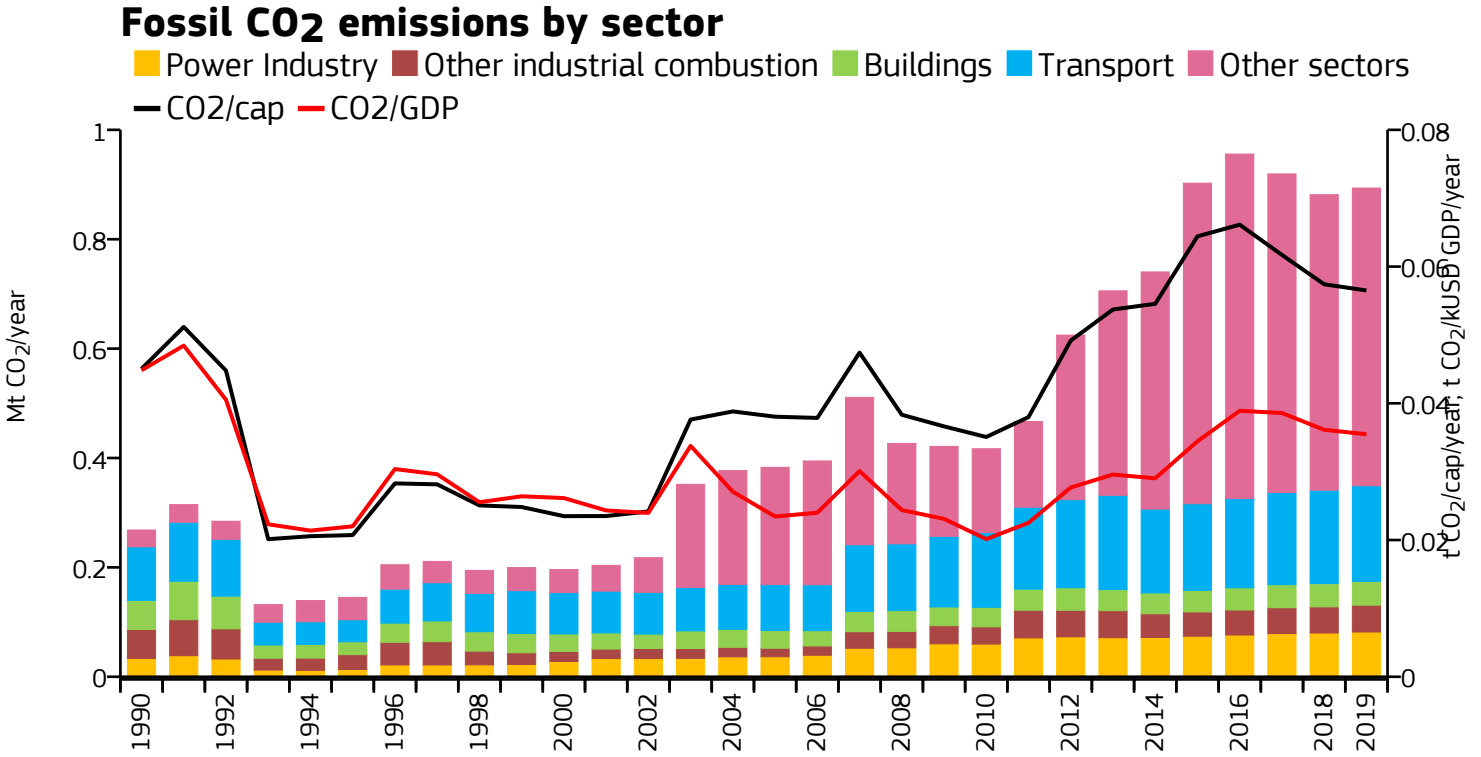


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.494	0.102	0.110	4.826M
2018	0.483	0.102	0.111	4.737M
2005	0.246	0.060	0.059	4.128M
1990	0.159	0.054	0.047	2.940M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+449%	+126%	+2%
Other industrial combustion	+109%	+219%	+2%
Buildings	+84%	+36%	+2%
Transport	+301%	+111%	+2%
Other sectors	+41%	+7%	+1%
All sectors	+211%	+101%	+2%

Chad

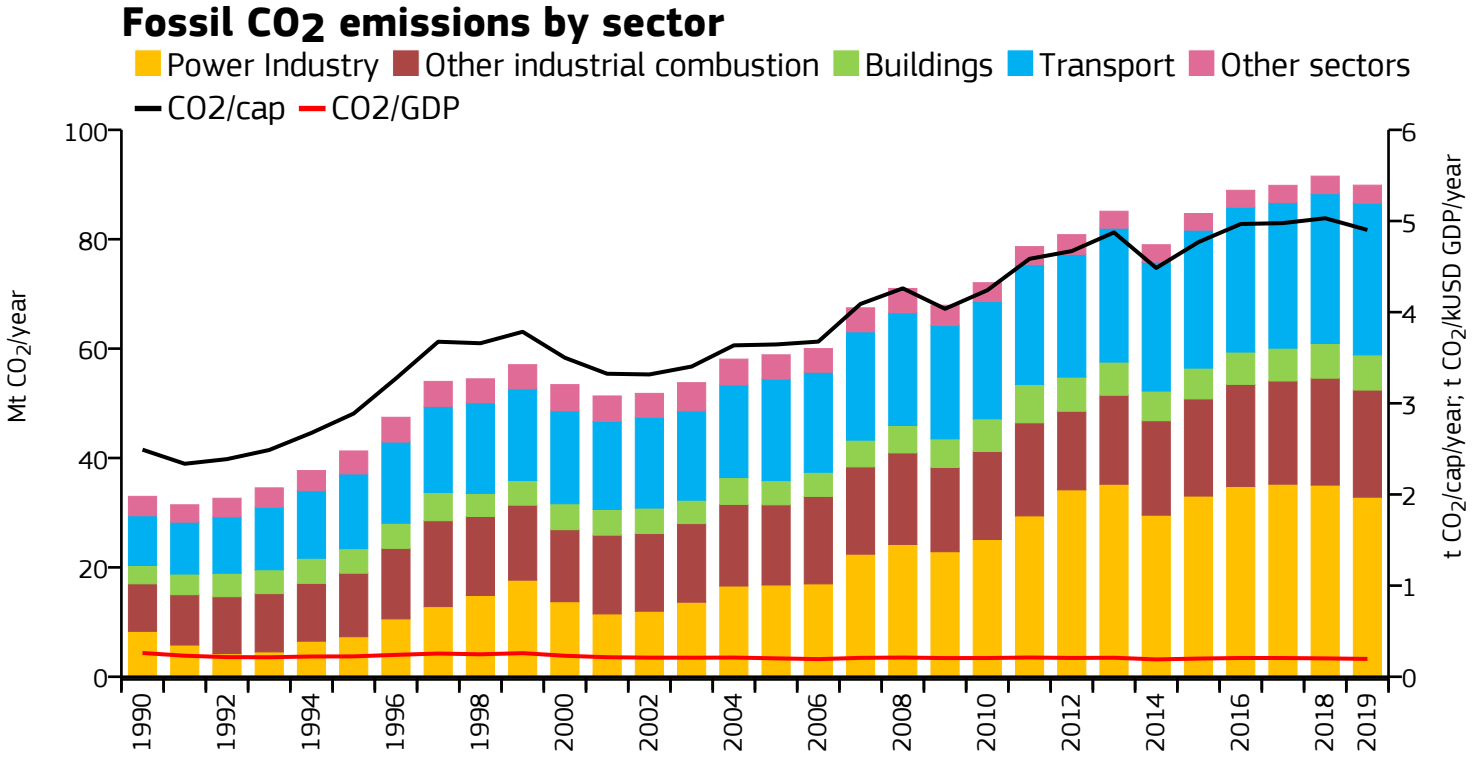


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.894	0.057	0.035	15.814M
2018	0.881	0.057	0.036	15.353M
2005	0.383	0.038	0.023	10.067M
1990	0.268	0.045	0.045	5.957M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+144%	+123%	+2%
Other industrial combustion	-7%	+216%	+2%
Buildings	-18%	+35%	+2%
Transport	+78%	+108%	+2%
Other sectors	+1669%	+154%	+1%
All sectors	+233%	+133%	+1%

Chile

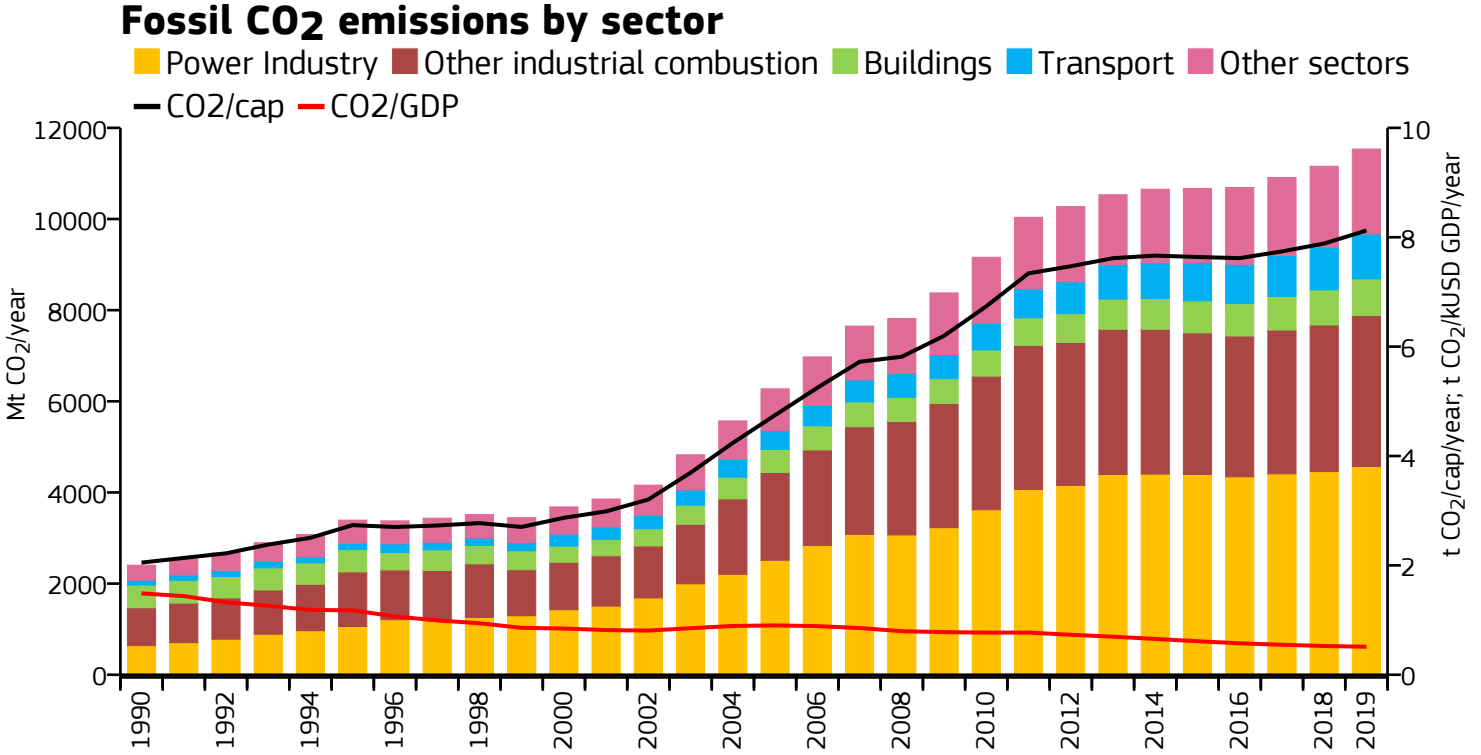


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	89.889	4.902	0.196	18.337M
2018	91.538	5.030	0.201	18.197M
2005	58.868	3.646	0.202	16.147M
1990	32.990	2.491	0.261	13.242M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+295%	+96%	-6%
Other industrial combustion	+125%	+34%	0%
Buildings	+92%	+45%	+1%
Transport	+206%	+50%	+1%
Other sectors	-8%	-26%	+2%
All sectors	+172%	+53%	-2%

China

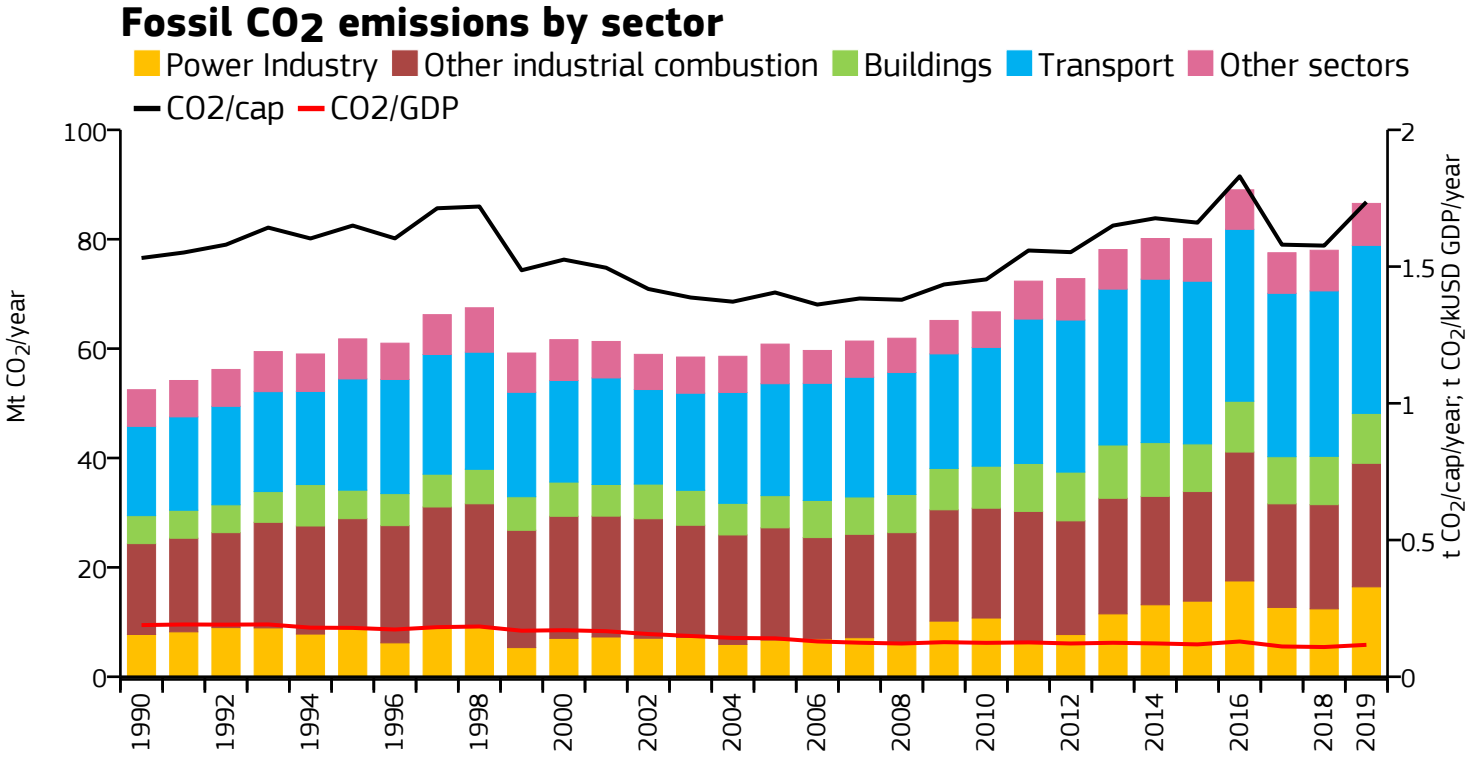


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	11535.200	8.123	0.512	1.420G
2018	11157.071	7.885	0.526	1.415G
2005	6273.361	4.747	0.902	1.322G
1990	2404.743	2.051	1.488	1.172G

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+615%	+82%	+2%
Other industrial combustion	+298%	+72%	+3%
Buildings	+61%	+59%	+4%
Transport	+822%	+139%	+5%
Other sectors	+467%	+104%	+5%
All sectors	+380%	+84%	+3%

Colombia

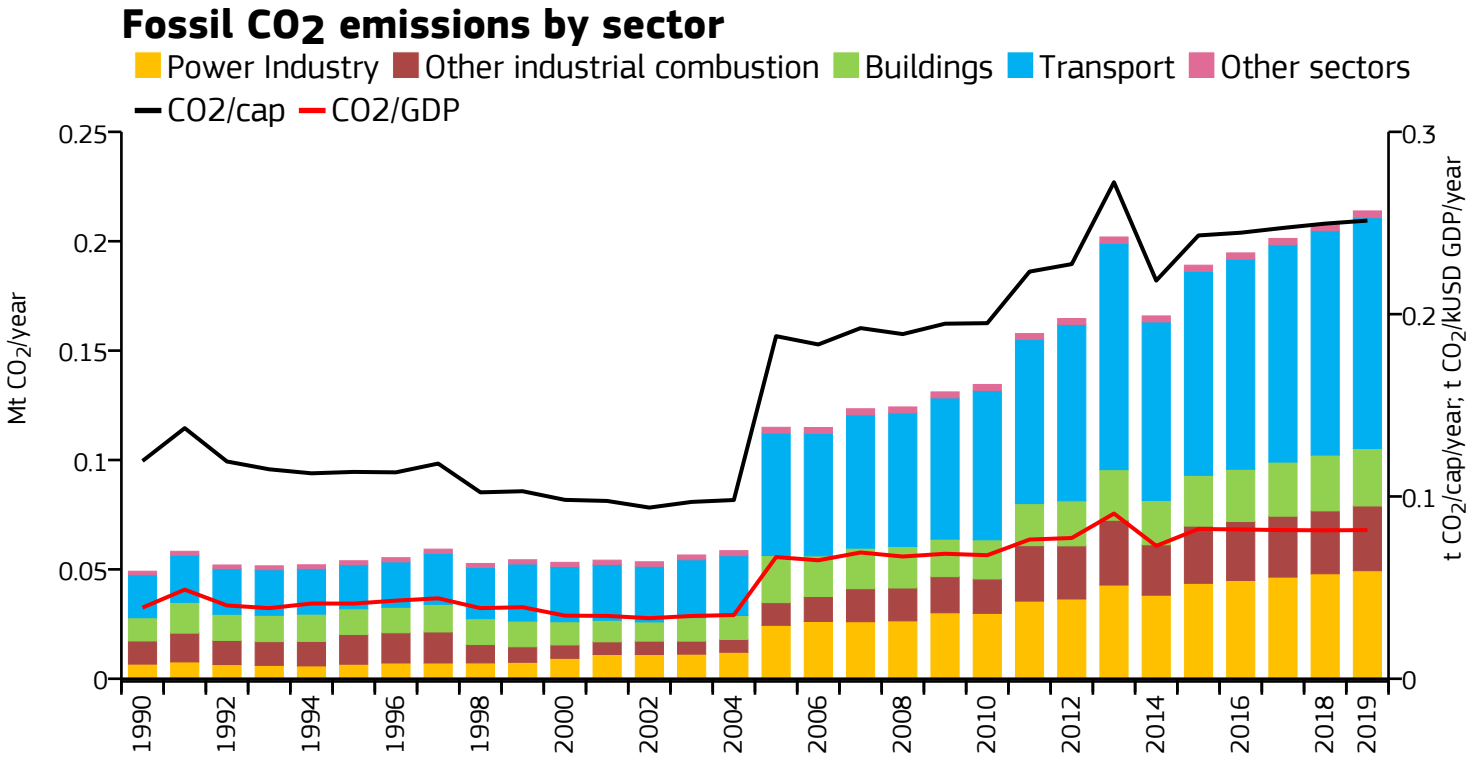


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	86.550	1.736	0.117	49.850M
2018	77.988	1.577	0.109	49.465M
2005	60.827	1.405	0.141	43.286M
1990	52.484	1.531	0.189	34.272M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+113%	+145%	+32%
Other industrial combustion	+36%	+10%	+19%
Buildings	+78%	+55%	+3%
Transport	+88%	+50%	+2%
Other sectors	+14%	+6%	+3%
All sectors	+65%	+42%	+11%

Comoros

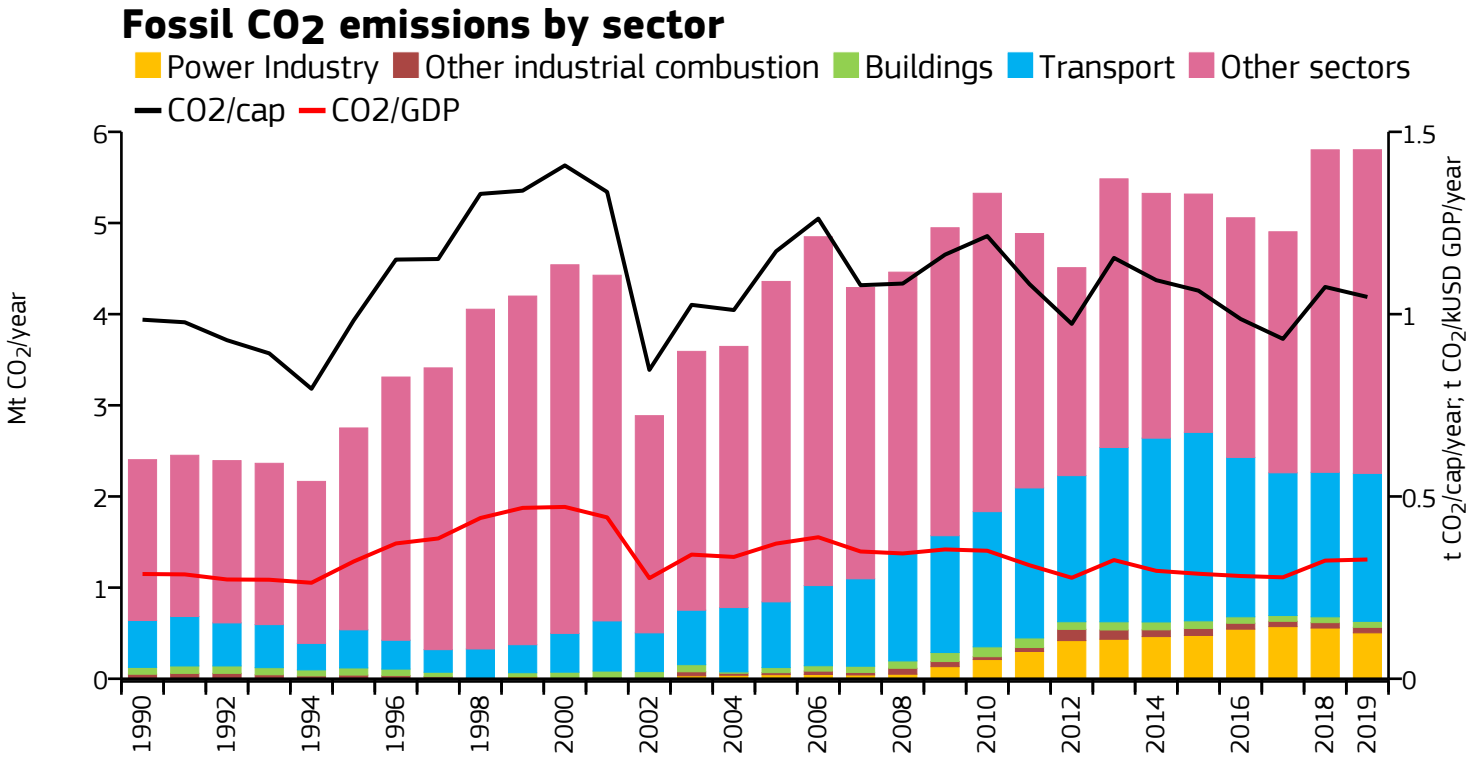


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.214	0.251	0.082	850.910k
2018	0.208	0.250	0.081	832.347k
2005	0.115	0.188	0.067	611.627k
1990	0.049	0.119	0.039	411.594k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+637%	+102%	+3%
Other industrial combustion	+180%	+186%	+3%
Buildings	+148%	+22%	+3%
Transport	+438%	+89%	+3%
Other sectors	+85%	+15%	+2%
All sectors	+335%	+86%	+3%

Congo



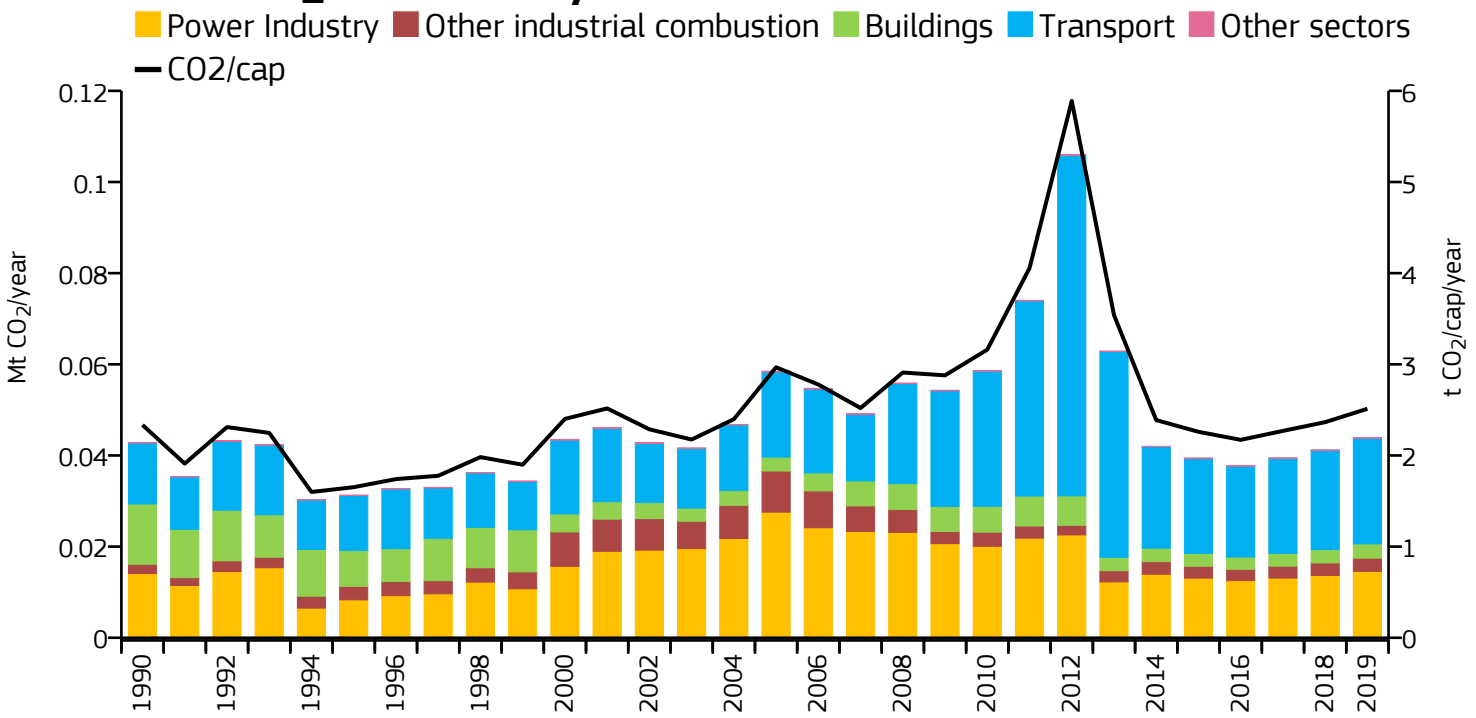
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5.804	1.047	0.327	5.542M
2018	5.803	1.075	0.324	5.400M
2005	4.359	1.172	0.371	3.718M
1990	2.403	0.985	0.287	2.440M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +15709%	↗ +1020%	↘ -9%
Other industrial combustion	↗ +30%	↗ +178%	→ +2%
Buildings	↘ -12%	↗ +18%	→ +2%
Transport	↗ +216%	↗ +125%	→ +2%
Other sectors	↗ +101%	→ +1%	→ 0%
All sectors	↗ +141%	↗ +33%	→ 0%

Cook Islands

Fossil CO_2 emissions by sector

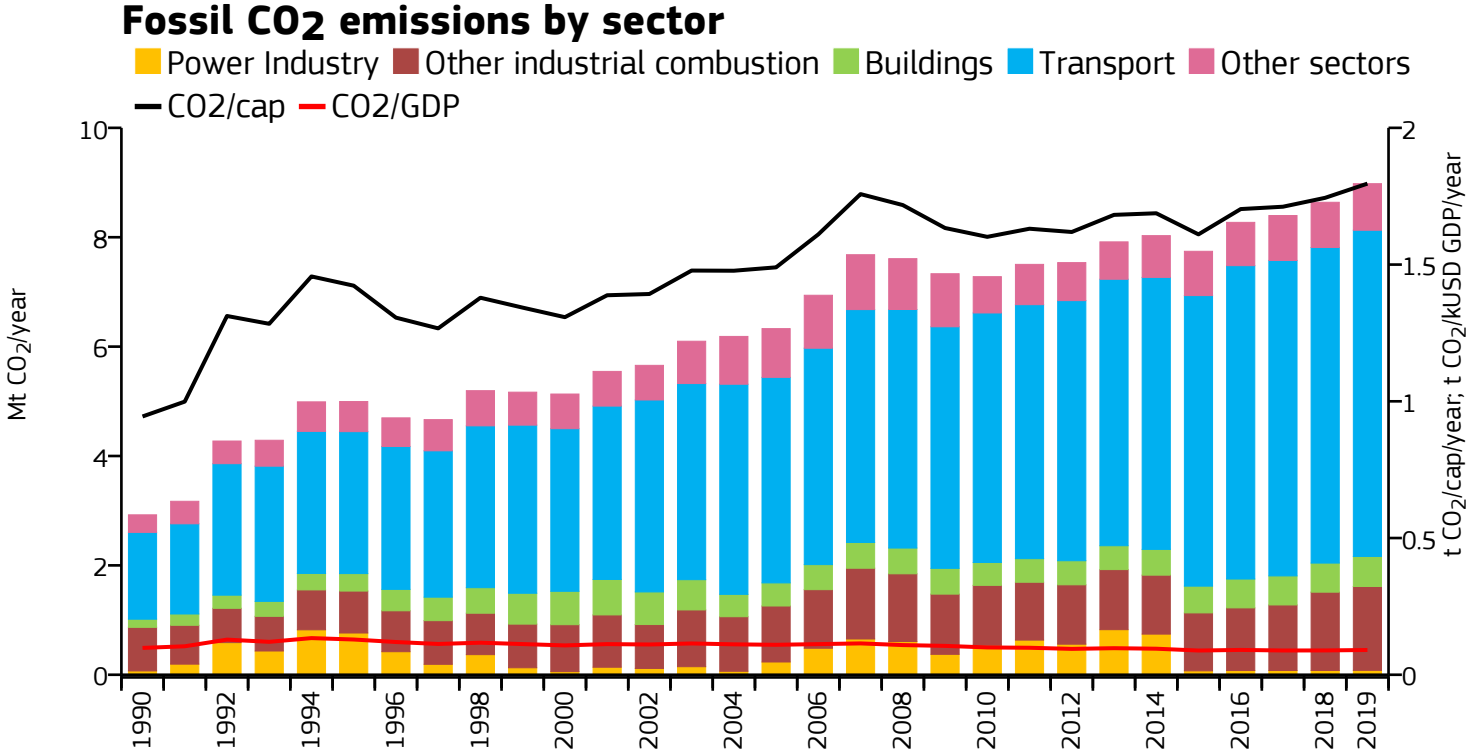


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.044	2.512	n/a	17.462k
2018	0.041	2.365	n/a	17.411k
2005	0.058	2.967	n/a	19.710k
1990	0.043	2.334	n/a	18.356k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+3%	-47%	+7%
Other industrial combustion	+42%	-68%	+7%
Buildings	-76%	+3%	+7%
Transport	+74%	+24%	+7%
Other sectors	-74%	-80%	-14%
All sectors	+2%	-25%	+7%

Costa Rica



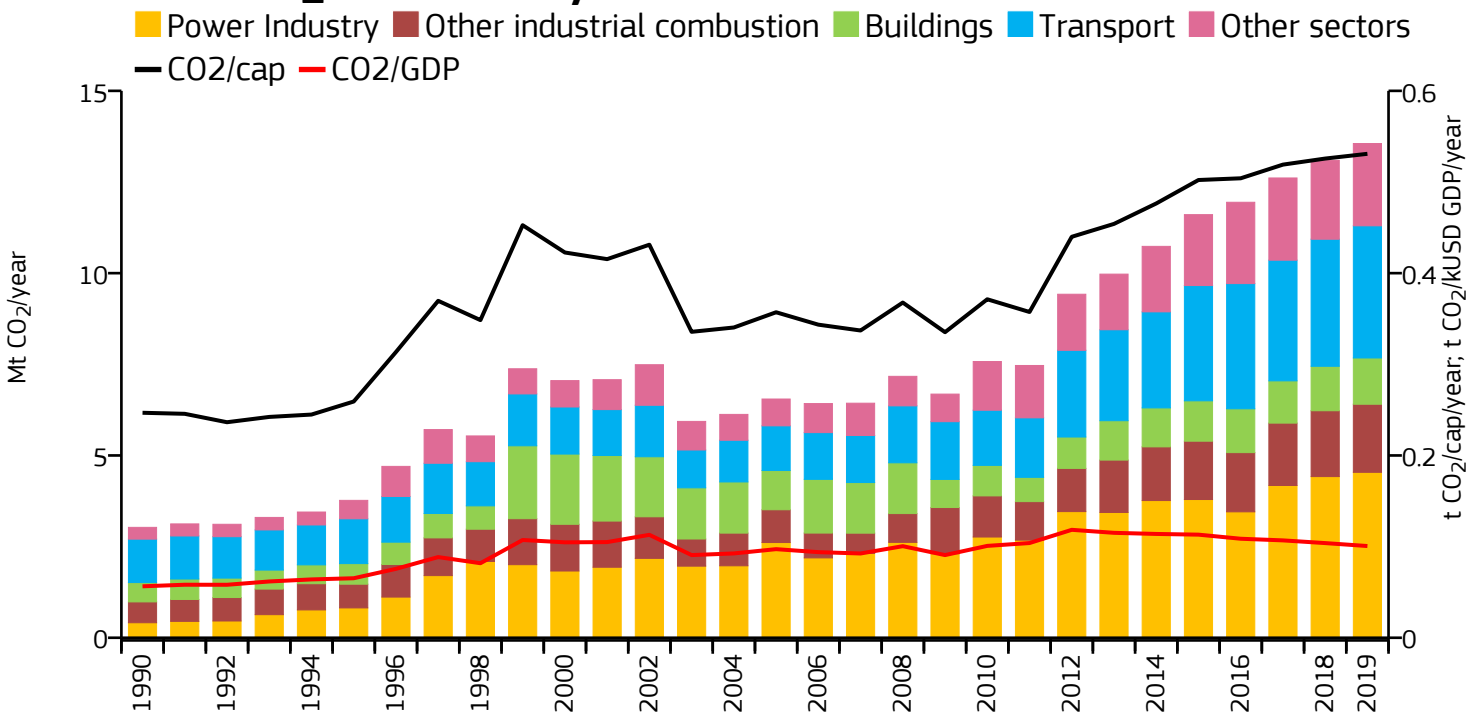
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	8.979	1.796	0.091	4.999M
2018	8.639	1.744	0.089	4.953M
2005	6.329	1.490	0.110	4.248M
1990	2.924	0.945	0.098	3.096M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+15%	-66%	+3%
Other industrial combustion	+92%	+50%	+7%
Buildings	+269%	+30%	+3%
Transport	+276%	+59%	+3%
Other sectors	+165%	-4%	+3%
All sectors	+207%	+42%	+4%

Côte d'Ivoire

Fossil CO_2 emissions by sector

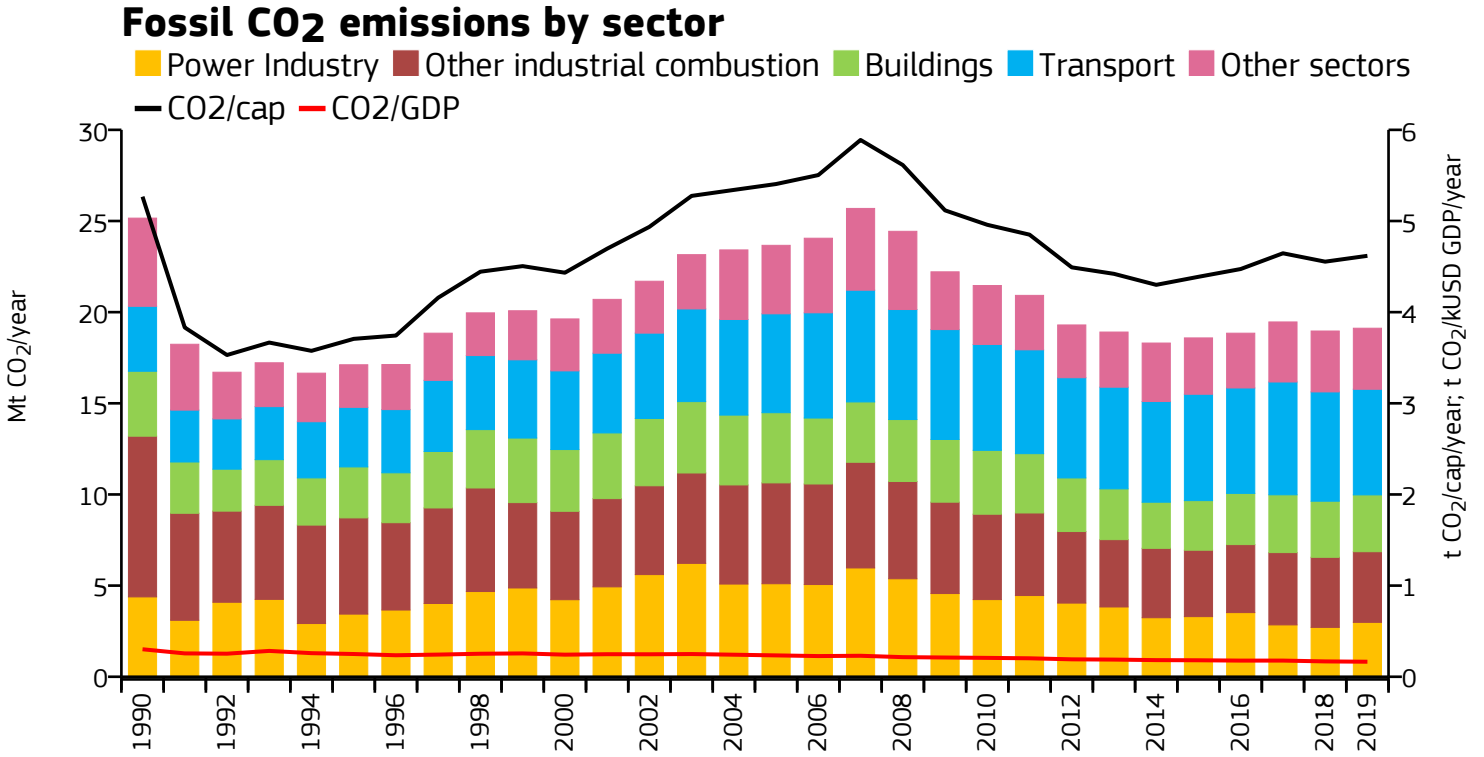


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	13.555	0.531	0.101	25.531M
2018	13.094	0.526	0.104	24.906M
2005	6.548	0.357	0.097	18.336M
1990	3.028	0.247	0.056	12.268M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1002%	+74%	+3%
Other industrial combustion	+227%	+108%	+3%
Buildings	+139%	+18%	+4%
Transport	+204%	+196%	+4%
Other sectors	+599%	+207%	+4%
All sectors	+348%	+107%	+4%

Croatia

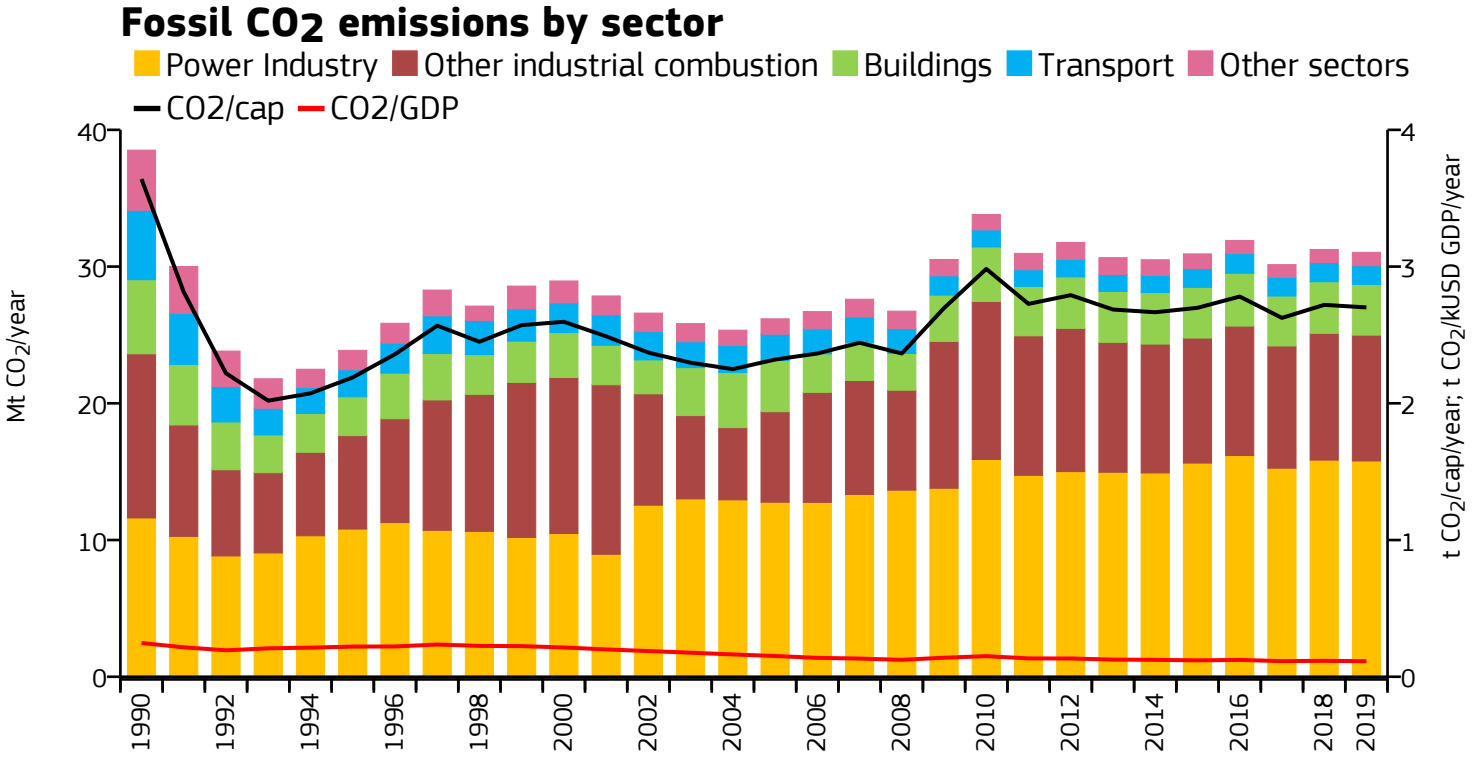


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	19.119	4.618	0.165	4.140M
2018	18.966	4.554	0.168	4.165M
2005	23.666	5.406	0.234	4.378M
1990	25.158	5.267	0.302	4.776M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-32%	↘	-42%	↗	+10%
Other industrial combustion	↘	-56%	↘	-30%	→	+1%
Buildings	↘	-12%	↘	-19%	→	+1%
Transport	↗	+63%	↗	+7%	→	-3%
Other sectors	↘	-31%	↘	-11%	→	0%
All sectors	↘	-24%	↘	-19%	→	+1%

Cuba



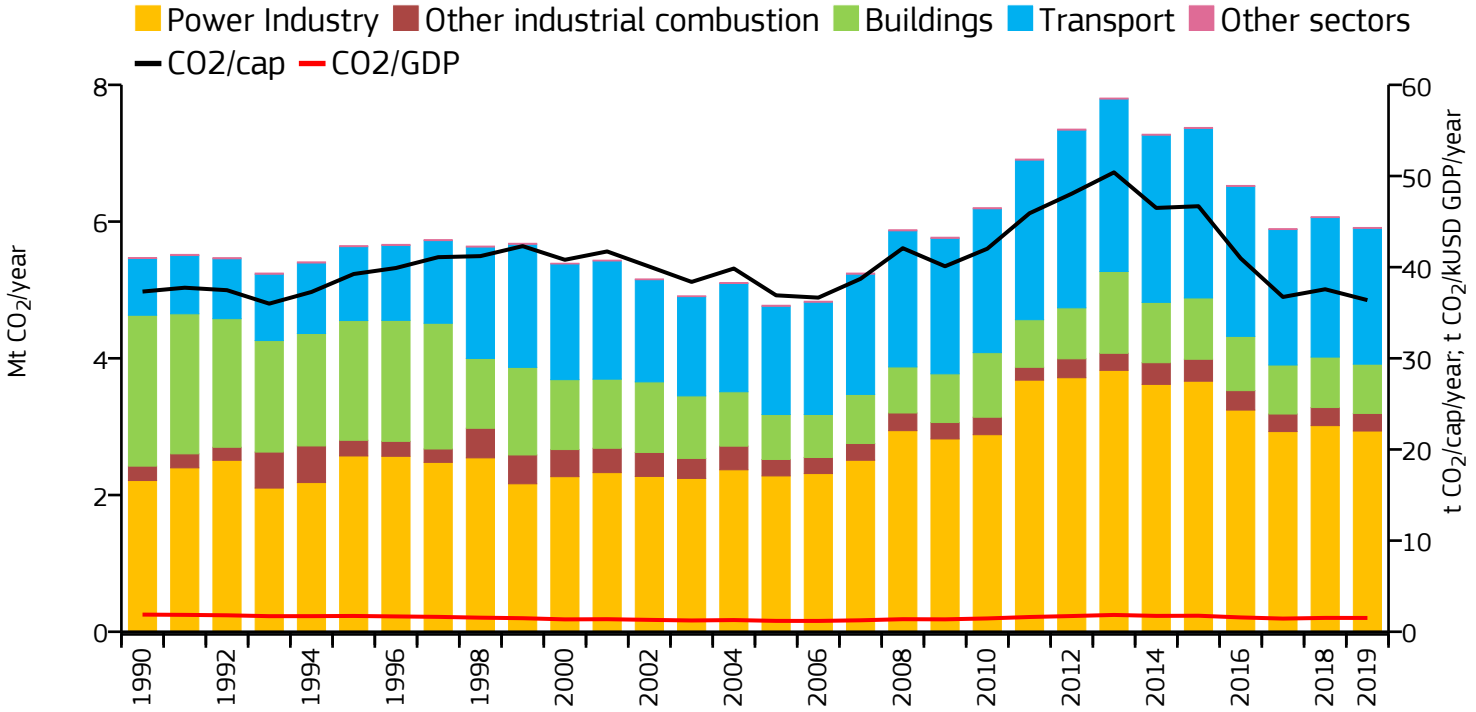
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	31.043	2.701	0.114	11.492M
2018	31.250	2.720	0.116	11.489M
2005	26.179	2.320	0.152	11.284M
1990	38.518	3.640	0.247	10.582M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↗	+36%	↗	+24%	→	0%
Other industrial combustion	↘	-23%	↗	+39%	→	-1%
Buildings	↘	-32%	→	-1%	→	-2%
Transport	↘	-73%	↘	-29%	→	-3%
Other sectors	↘	-78%	↘	-13%	→	+3%
All sectors	↘	-19%	↗	+19%	→	-1%

Curaçao

Fossil CO_2 emissions by sector

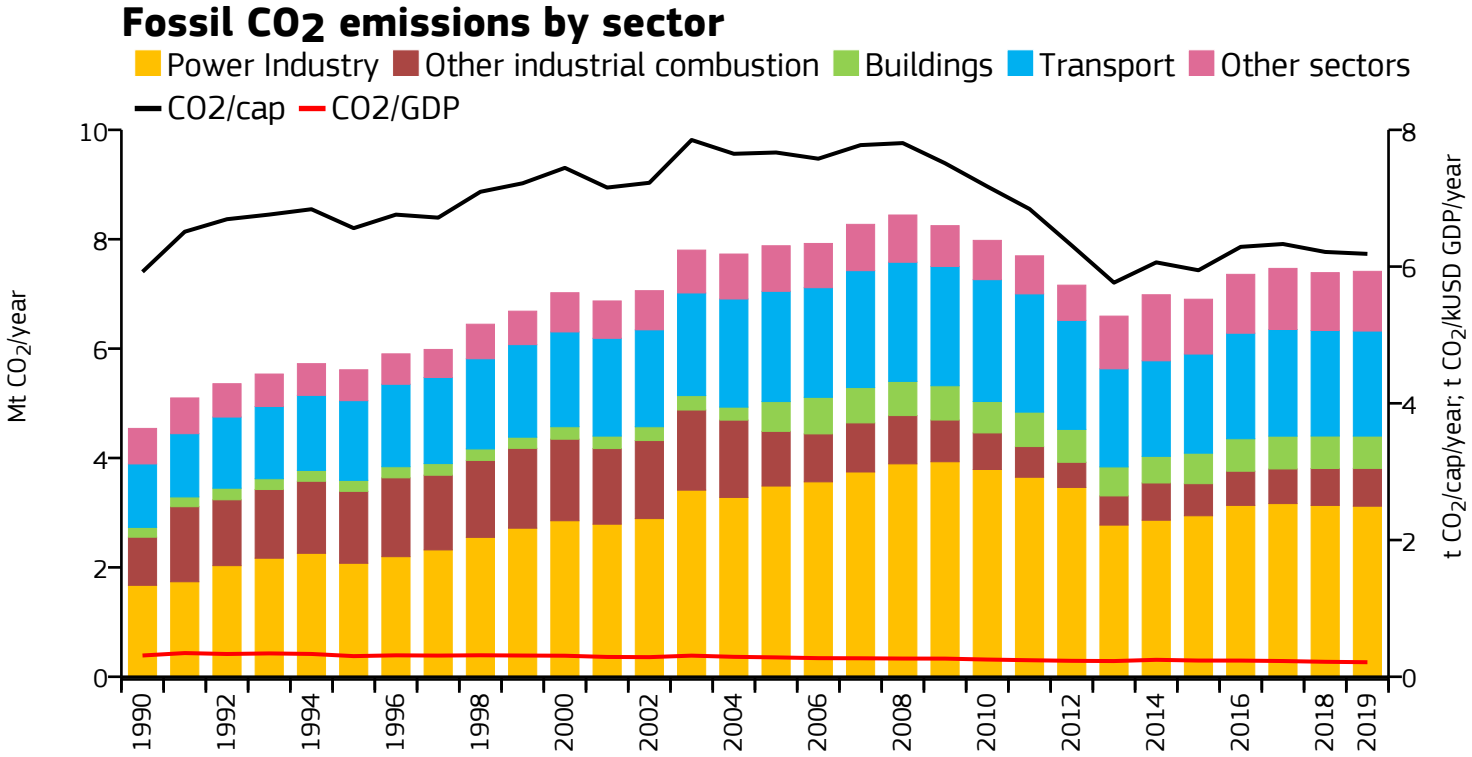


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5.914	36.382	1.514	162.547k
2018	6.071	37.574	1.521	161.577k
2005	4.776	36.909	1.192	129.394k
1990	5.474	37.321	1.882	146.671k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+33%	+29%	-3%
Other industrial combustion	+22%	+7%	-3%
Buildings	-67%	+10%	-2%
Transport	+139%	+26%	-3%
Other sectors	-12%	-16%	-2%
All sectors	+8%	+24%	-3%

Cyprus

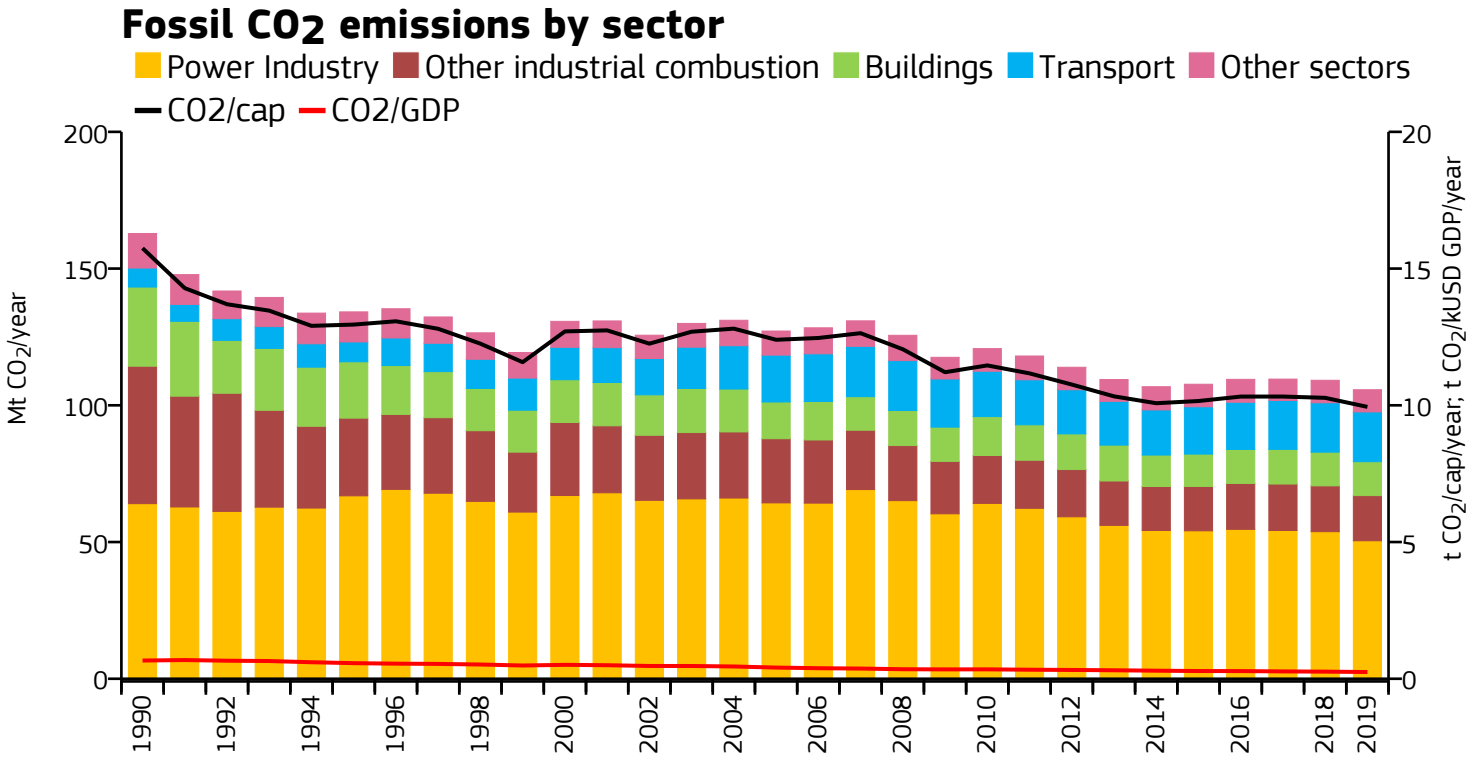


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.413	6.186	0.213	1.198M
2018	7.389	6.214	0.219	1.189M
2005	7.881	7.669	0.283	1.028M
1990	4.541	5.924	0.311	766.614k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+87%	-11%	0%
Other industrial combustion	-21%	-31%	+2%
Buildings	+229%	+8%	0%
Transport	+66%	-5%	0%
Other sectors	+68%	+31%	+3%
All sectors	+63%	-6%	0%

Czechia



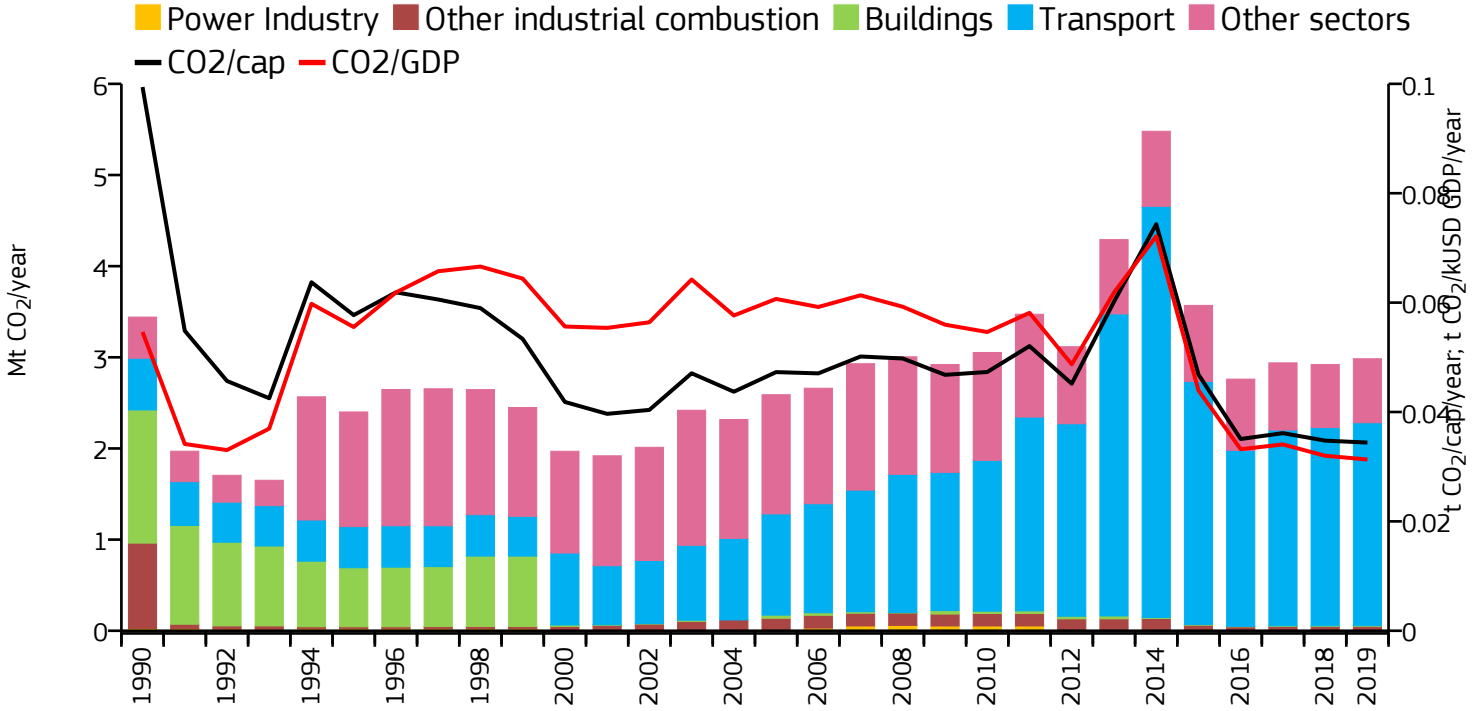
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	105.693	9.942	0.246	10.631M
2018	109.153	10.273	0.260	10.625M
2005	127.164	12.396	0.409	10.258M
1990	162.835	15.746	0.666	10.341M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-21%	-22%	-6%
Other industrial combustion	-67%	-30%	-1%
Buildings	-57%	-8%	+1%
Transport	+162%	+6%	+1%
Other sectors	-36%	-8%	-1%
All sectors	-35%	-17%	-3%

Democratic Republic of the Congo

Fossil CO_2 emissions by sector

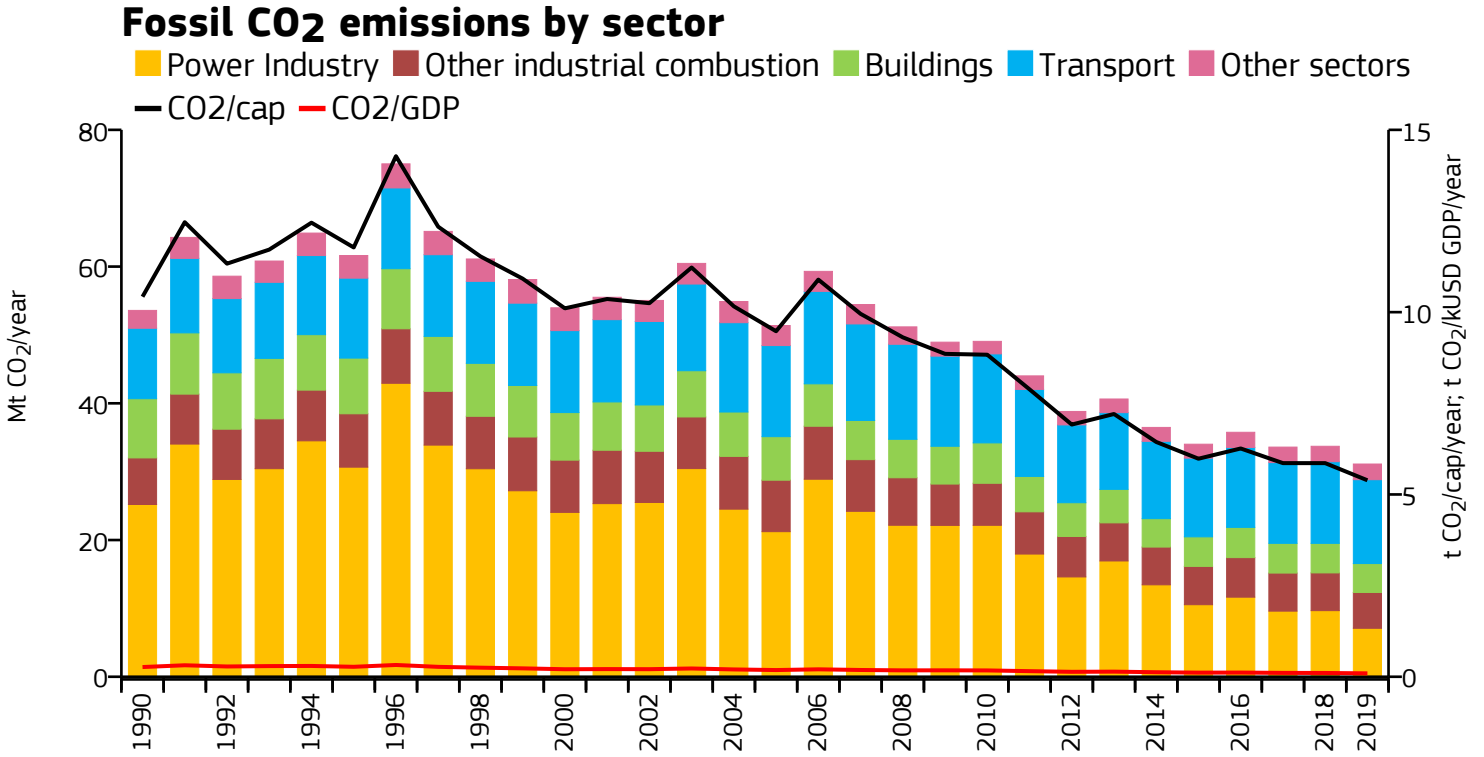


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.984	0.034	0.031	86.728M
2018	2.921	0.035	0.032	84.005M
2005	2.589	0.047	0.061	54.752M
1990	3.441	0.099	0.055	34.615M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-66%	+33%	+2%
Other industrial combustion	-96%	-68%	+2%
Buildings	-100%	-85%	+2%
Transport	+293%	+101%	+2%
Other sectors	+55%	-46%	+2%
All sectors	-13%	+15%	+2%

Denmark



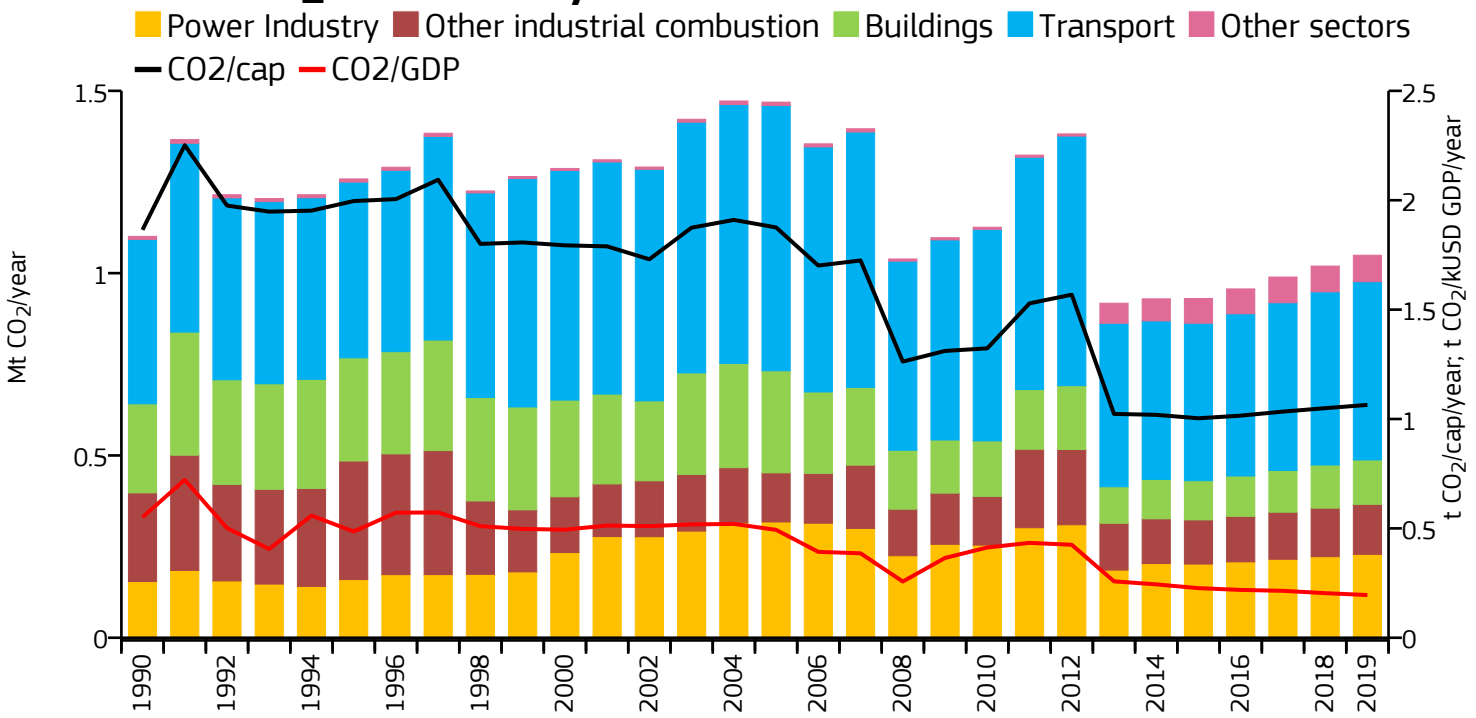
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	31.119	5.388	0.094	5.775M
2018	33.715	5.859	0.104	5.754M
2005	51.379	9.477	0.184	5.422M
1990	53.590	10.424	0.266	5.141M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↘ -72%	↘ -67%	↘ -27%
Other industrial combustion	↘ -23%	↘ -30%	→ -5%
Buildings	↘ -51%	↘ -34%	→ -2%
Transport	↗ +19%	↘ -8%	→ +3%
Other sectors	↘ -12%	↘ -22%	→ +2%
All sectors	↘ -42%	↘ -39%	↘ -8%

Djibouti

Fossil CO_2 emissions by sector



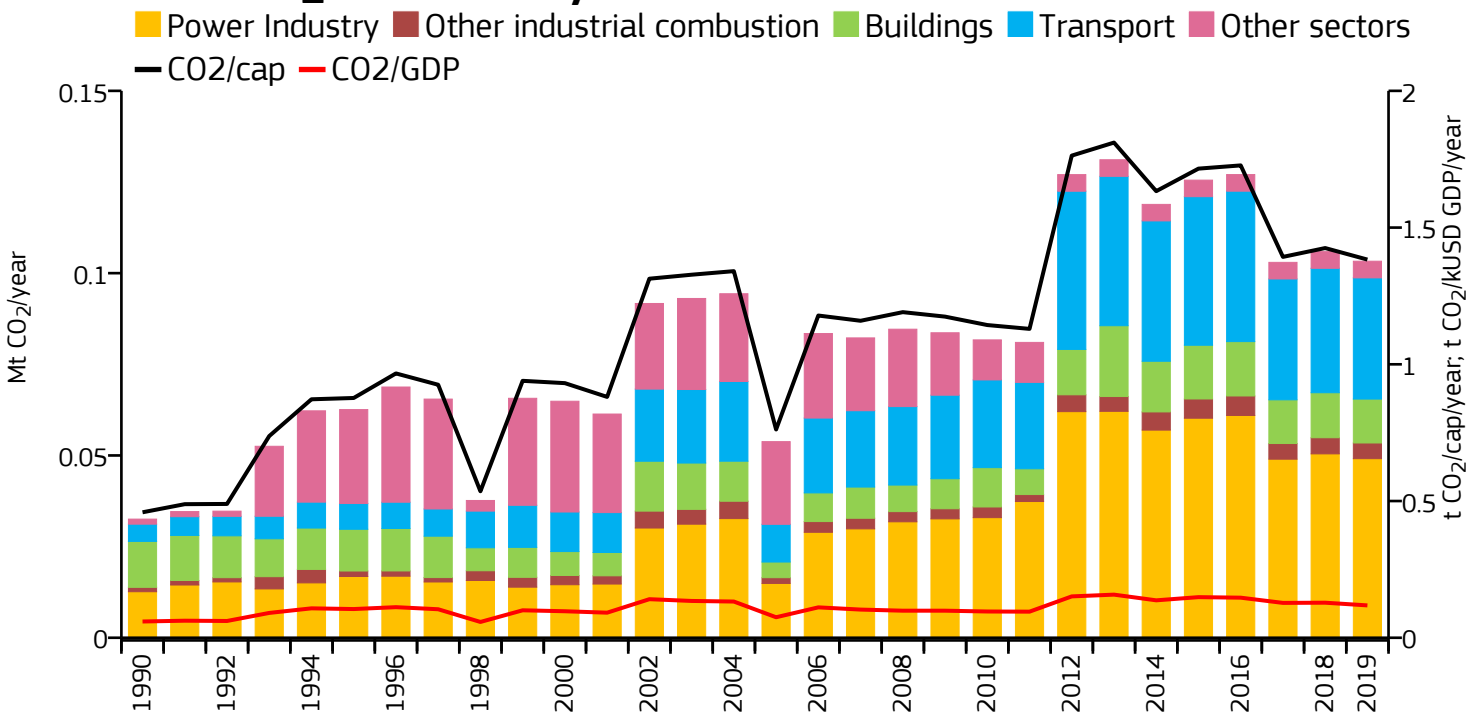
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.049	1.064	0.195	985.690k
2018	1.019	1.049	0.204	971.408k
2005	1.469	1.876	0.493	783.254k
1990	1.101	1.865	0.551	590.398k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+48%	-28%	+3%
Other industrial combustion	-44%	+2%	+3%
Buildings	-50%	-57%	+3%
Transport	+8%	-33%	+3%
Other sectors	+787%	+666%	+3%
All sectors	-5%	-29%	+3%

Dominica

Fossil CO_2 emissions by sector

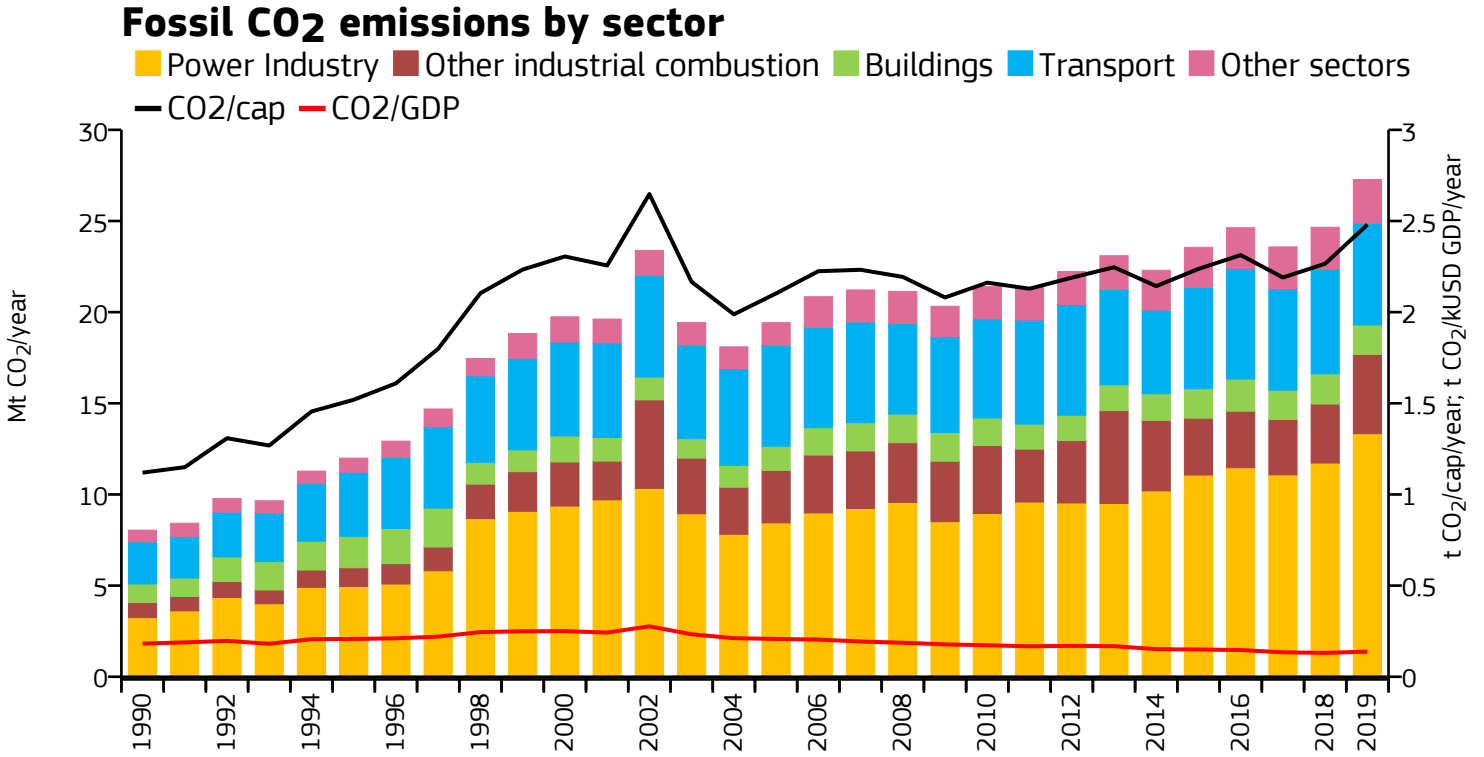


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.103	1.383	0.118	74.679k
2018	0.106	1.425	0.128	74.308k
2005	0.054	0.762	0.075	70.627k
1990	0.033	0.459	0.059	70.926k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+289%	+230%	-3%
Other industrial combustion	+258%	+174%	-3%
Buildings	-4%	+180%	-2%
Transport	+602%	+221%	-3%
Other sectors	+232%	-80%	0%
All sectors	+217%	+92%	-2%

Dominican Republic

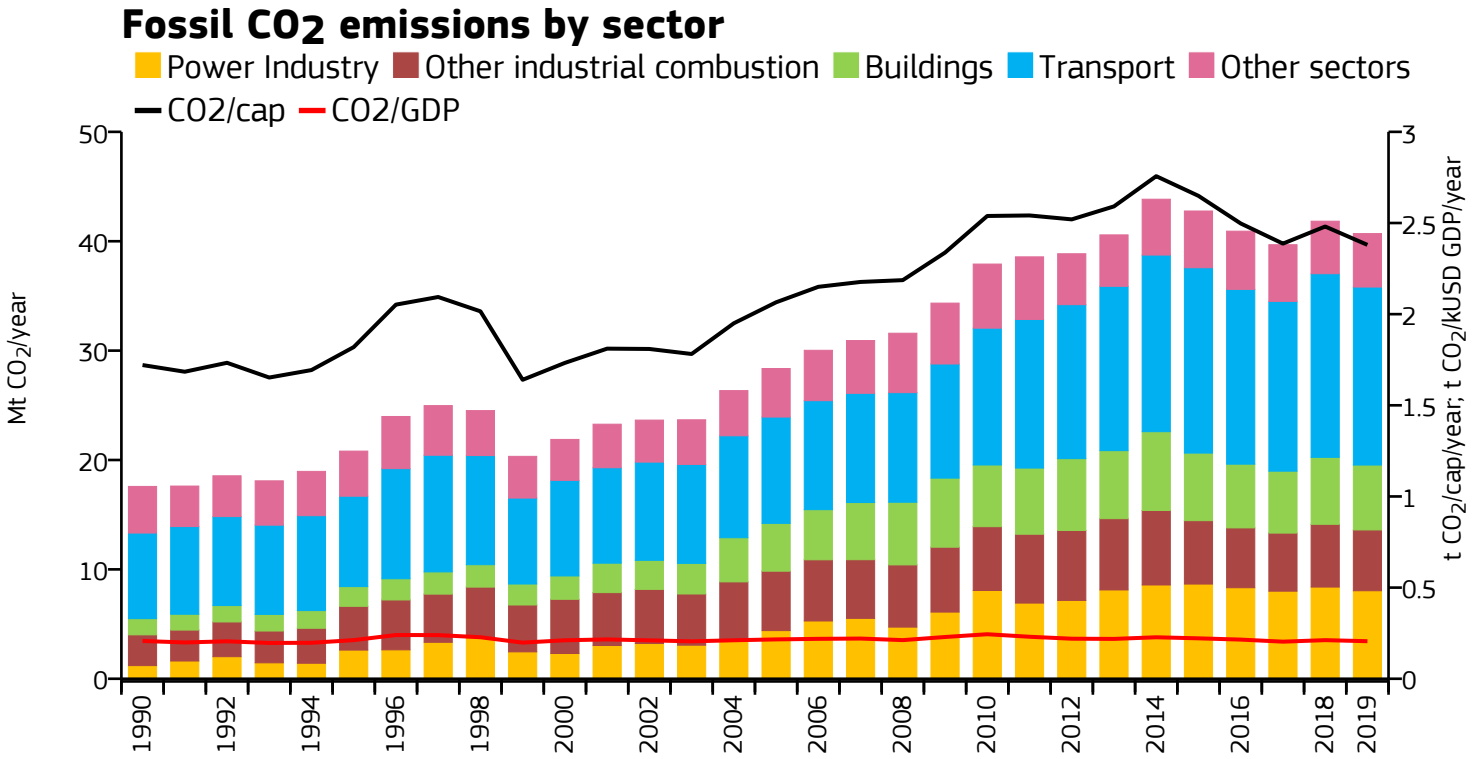


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	27.276	2.480	0.138	10.997M
2018	24.656	2.266	0.131	10.883M
2005	19.424	2.103	0.207	9.238M
1990	8.042	1.120	0.182	7.184M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+311%	+58%	+14%
Other industrial combustion	+426%	+51%	+34%
Buildings	+58%	+22%	-3%
Transport	+141%	+1%	-2%
Other sectors	+275%	+93%	+3%
All sectors	+239%	+40%	+11%

Ecuador

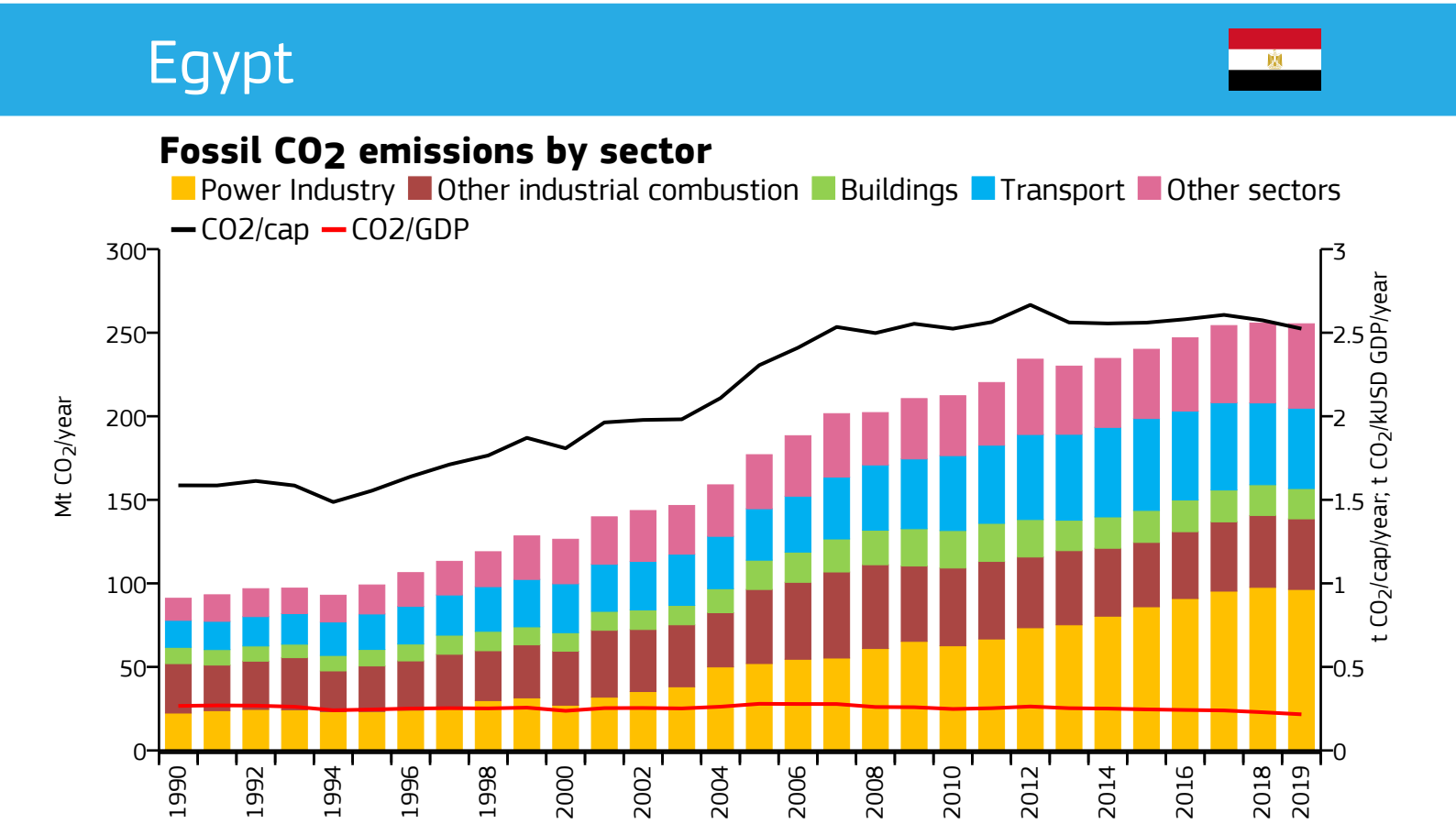


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	40.700	2.380	0.206	17.100M
2018	41.833	2.481	0.212	16.863M
2005	28.363	2.065	0.216	13.735M
1990	17.583	1.721	0.207	10.218M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+569%	+83%	-4%
Other industrial combustion	+98%	+2%	-3%
Buildings	+300%	+36%	-3%
Transport	+108%	+67%	-3%
Other sectors	+15%	+10%	+2%
All sectors	+131%	+43%	-3%

Egypt



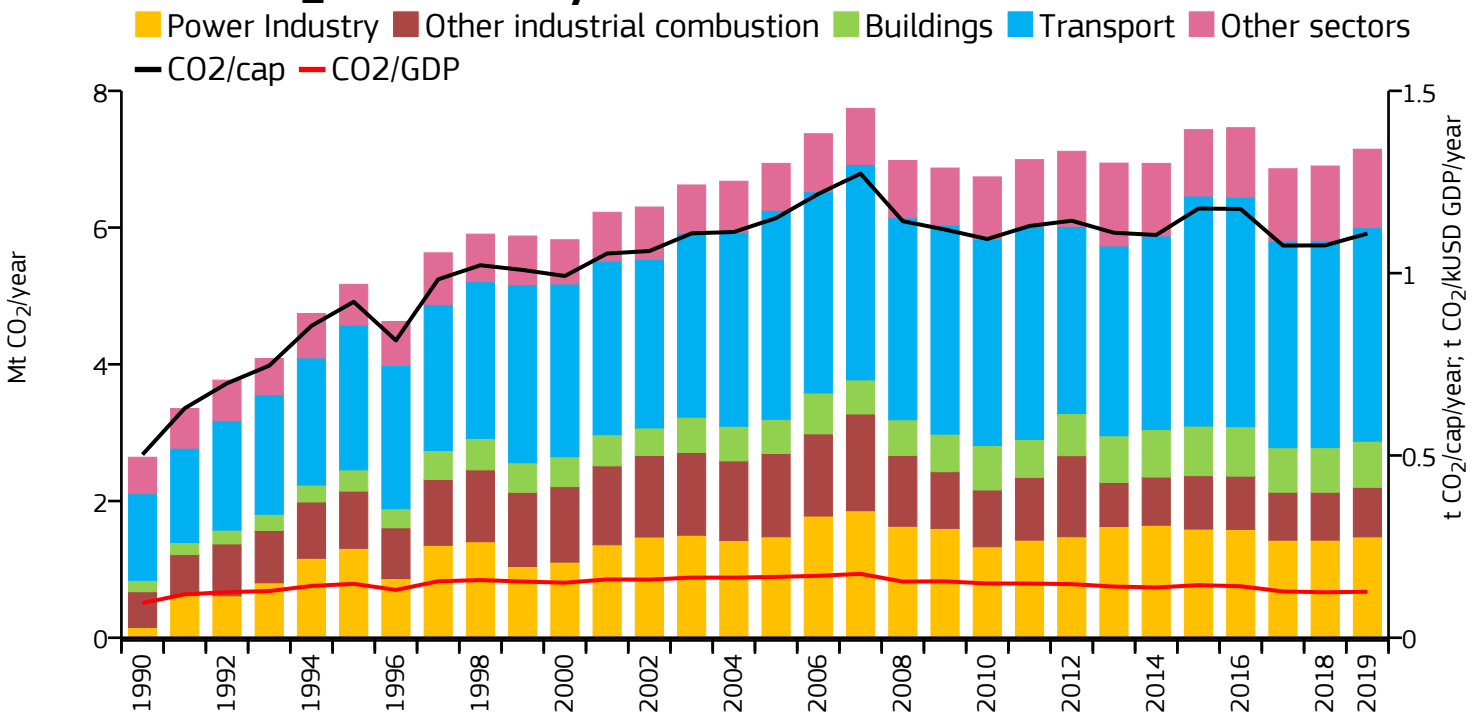
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	255.369	2.524	0.216	101.169M
2018	255.802	2.574	0.229	99.376M
2005	177.023	2.306	0.279	76.778M
1990	91.078	1.586	0.267	57.412M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+331%	+85%	-1%
Other industrial combustion	+43%	-5%	-2%
Buildings	+86%	+3%	-2%
Transport	+198%	+56%	-2%
Other sectors	+282%	+56%	+6%
All sectors	+180%	+44%	0%

El Salvador

Fossil CO_2 emissions by sector



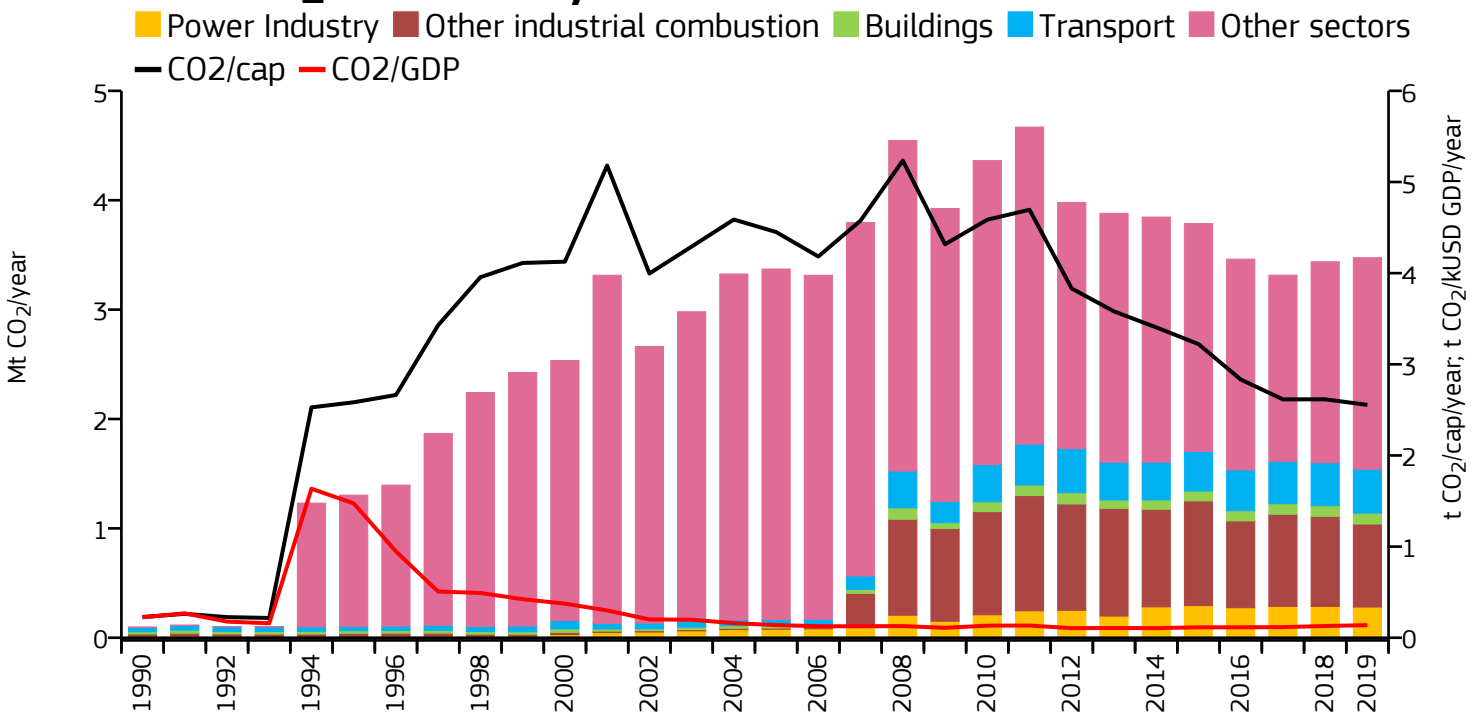
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.146	1.109	0.126	6.445M
2018	6.900	1.076	0.125	6.412M
2005	6.940	1.151	0.167	6.029M
1990	2.640	0.502	0.095	5.255M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+883%	0%	+3%
Other industrial combustion	+38%	-40%	+3%
Buildings	+305%	+35%	+3%
Transport	+147%	+2%	+3%
Other sectors	+115%	+67%	+5%
All sectors	+171%	+3%	+4%

Equatorial Guinea

Fossil CO_2 emissions by sector



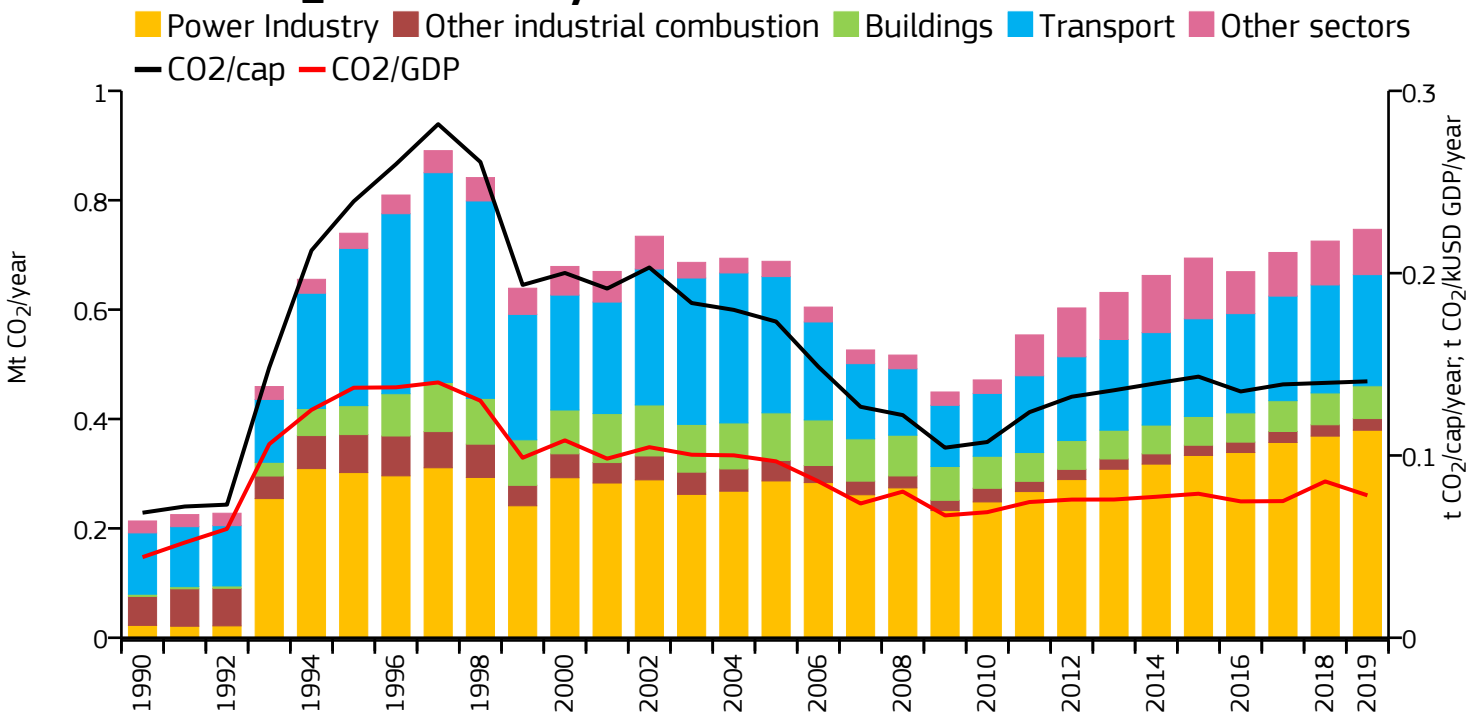
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.475	2.555	0.138	1.360M
2018	3.437	2.616	0.129	1.314M
2005	3.371	4.451	0.139	757.317k
1990	0.097	0.228	0.223	426.846k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +1996%	↗ +263%	→ -2%
Other industrial combustion	↗ +3488%	↗ +6477%	↘ -8%
Buildings	↗ +370%	↗ +364%	→ +2%
Transport	↗ +922%	↗ +616%	→ +2%
Other sectors	↗ +81231%	↘ -40%	→ +5%
All sectors	↗ +3467%	→ +3%	→ +1%

Eritrea

Fossil CO_2 emissions by sector

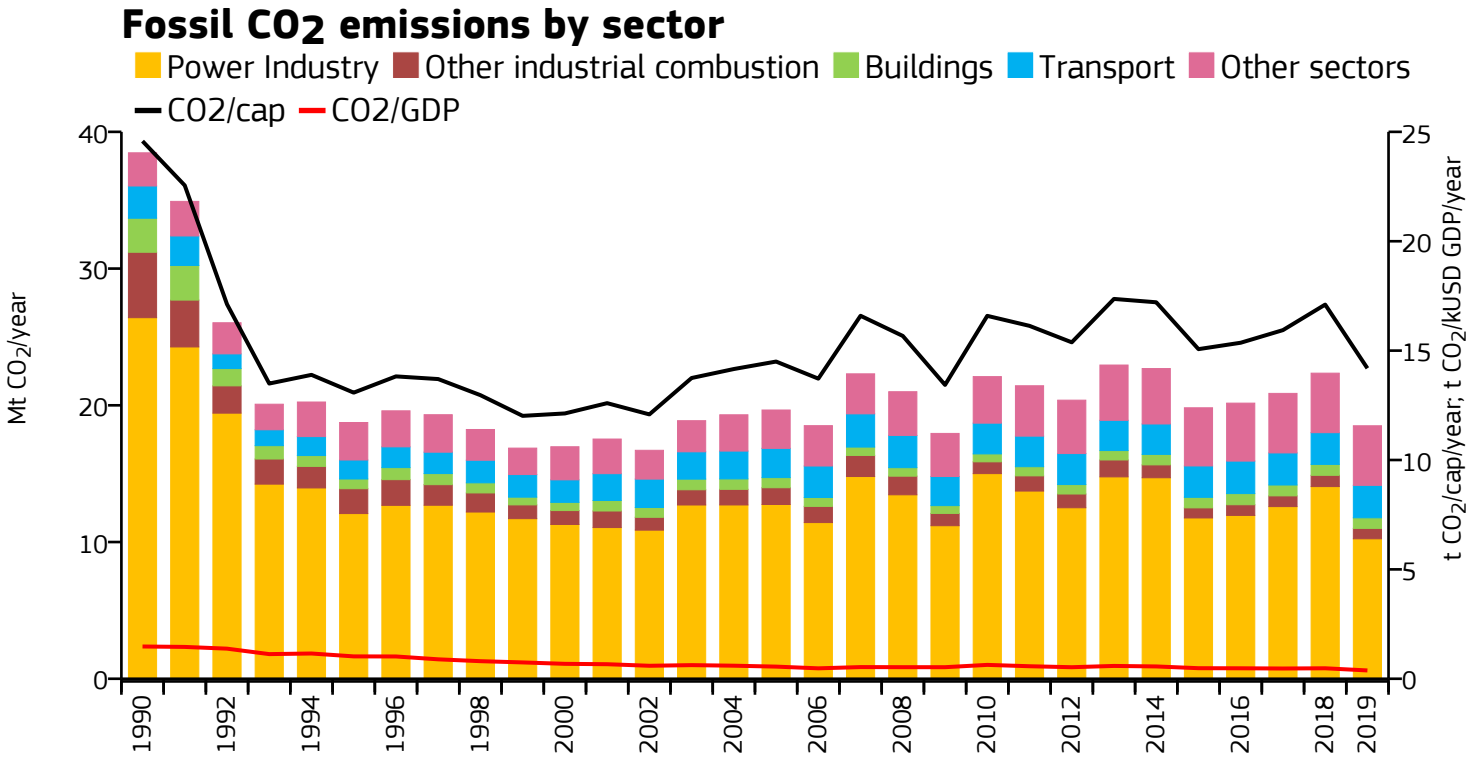


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.747	0.141	0.078	5.310M
2018	0.725	0.140	0.086	5.188M
2005	0.688	0.173	0.097	3.969M
1990	0.214	0.069	0.044	3.113M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1579%	+32%	+3%
Other industrial combustion	-60%	-43%	+3%
Buildings	+1412%	-31%	+3%
Transport	+81%	-18%	+3%
Other sectors	+280%	+196%	+3%
All sectors	+250%	+8%	+3%

Estonia



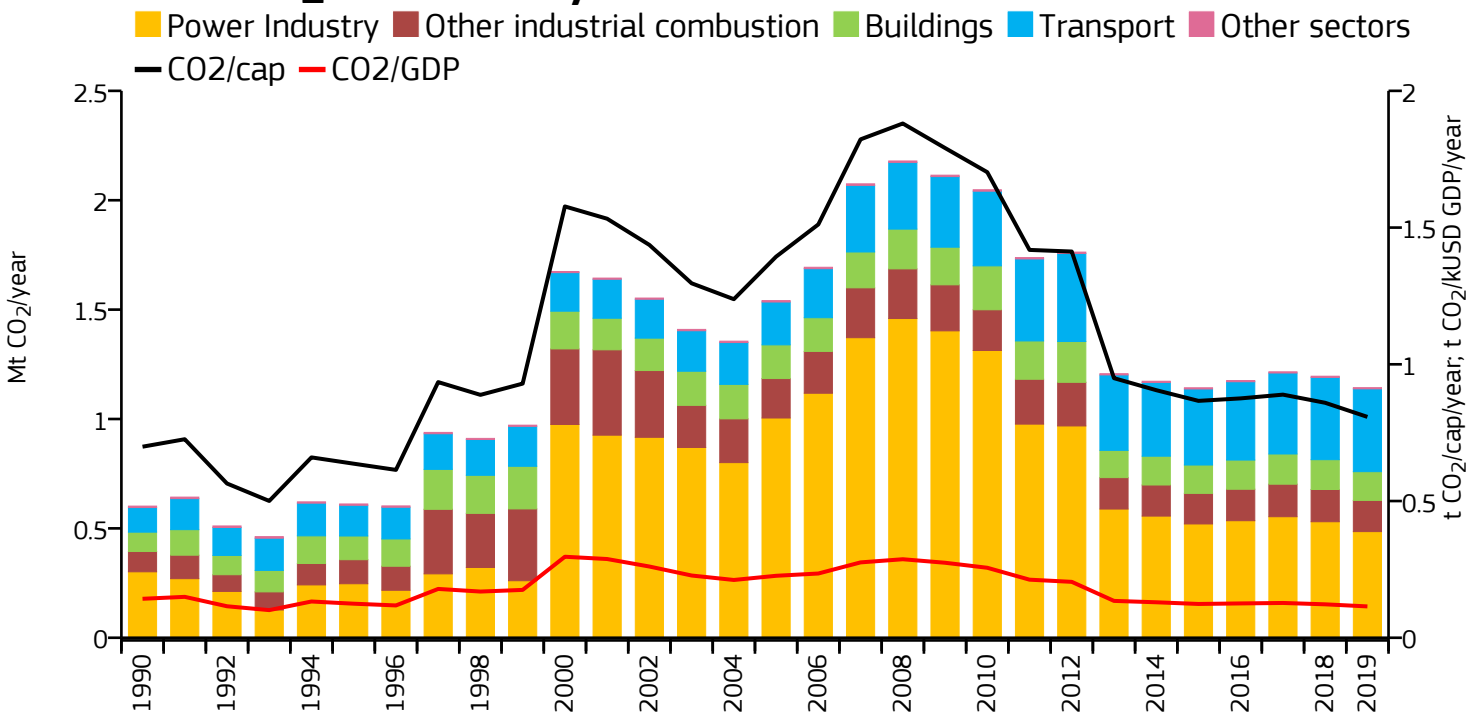
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	18.503	14.192	0.380	1.304M
2018	22.351	17.104	0.479	1.307M
2005	19.657	14.500	0.555	1.356M
1990	38.468	24.576	1.475	1.565M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-61%	-20%	-27%
Other industrial combustion	-84%	-38%	-7%
Buildings	-69%	+4%	-3%
Transport	+1%	+11%	+2%
Other sectors	+79%	+55%	0%
All sectors	-52%	-6%	-17%

Eswatini

Fossil CO_2 emissions by sector

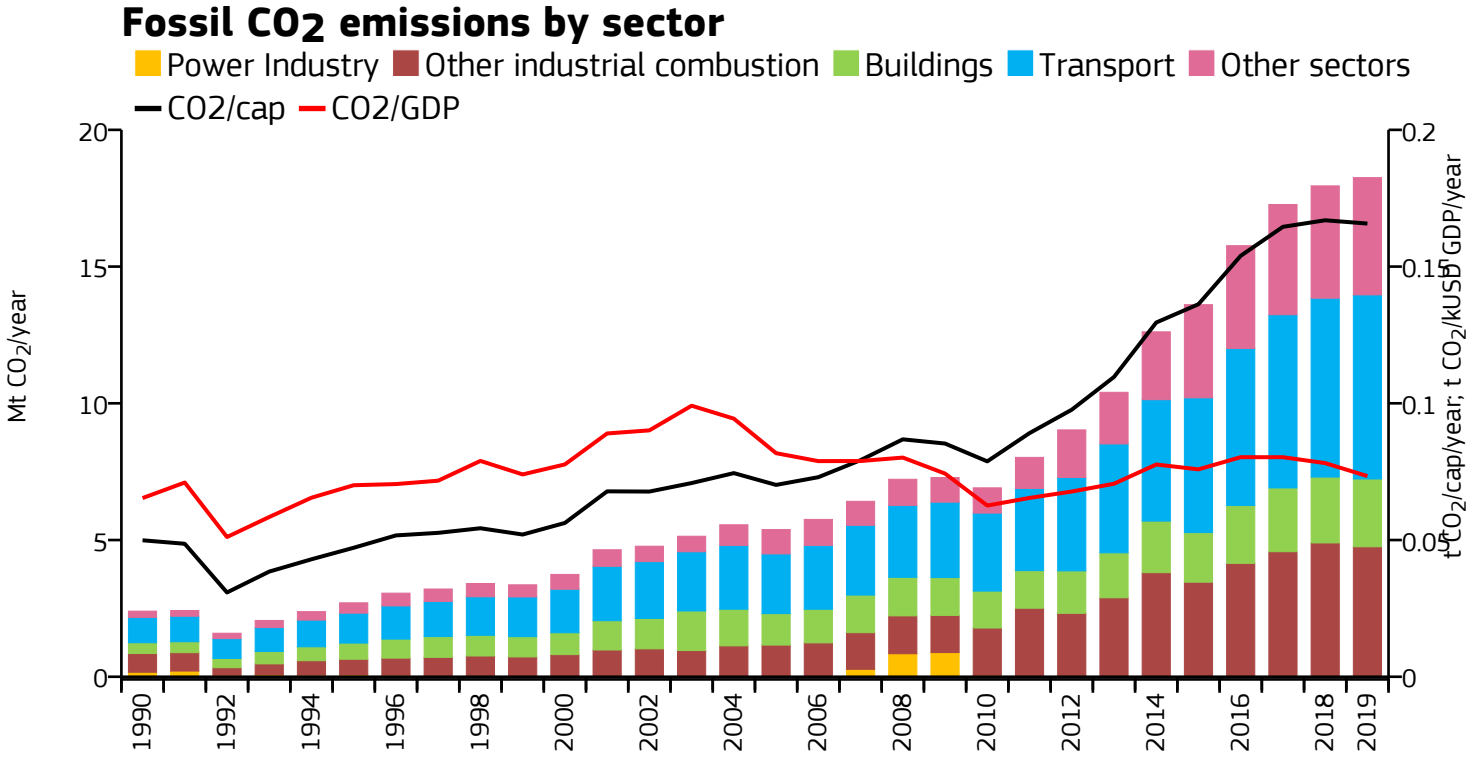


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.143	0.808	0.115	1.415M
2018	1.196	0.859	0.122	1.391M
2005	1.541	1.394	0.227	1.106M
1990	0.602	0.699	0.142	861.373k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+61%	-52%	-9%
Other industrial combustion	+54%	-21%	-3%
Buildings	+48%	-15%	-4%
Transport	+237%	+93%	+1%
Other sectors	-21%	-17%	0%
All sectors	+90%	-26%	-4%

Ethiopia



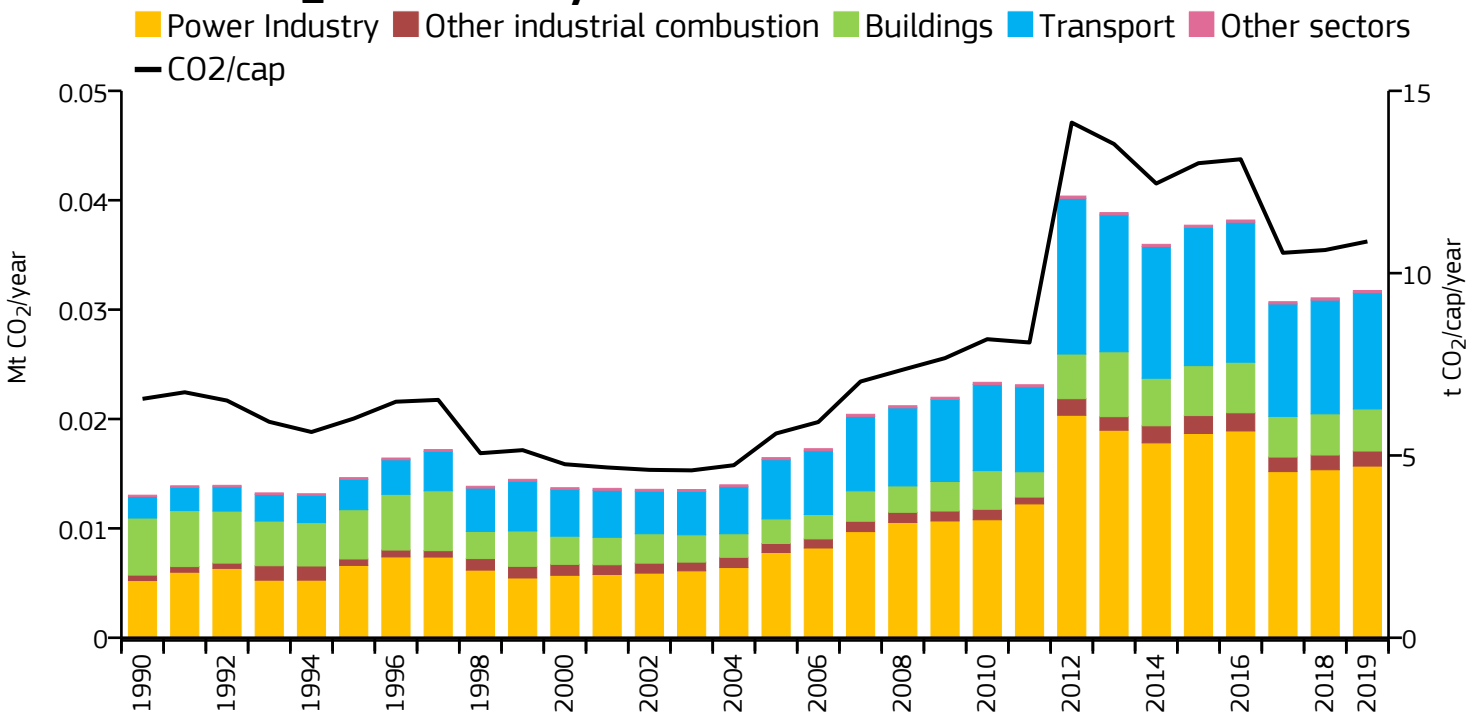
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	18.252	0.166	0.073	110.136M
2018	17.951	0.167	0.078	107.535M
2005	5.383	0.070	0.082	76.727M
1990	2.400	0.050	0.065	48.087M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-97%	-55%	+3%
Other industrial combustion	+594%	+313%	-3%
Buildings	+529%	+115%	+3%
Transport	+626%	+209%	+3%
Other sectors	+1774%	+381%	+4%
All sectors	+661%	+239%	+2%

Falkland Islands

Fossil CO_2 emissions by sector



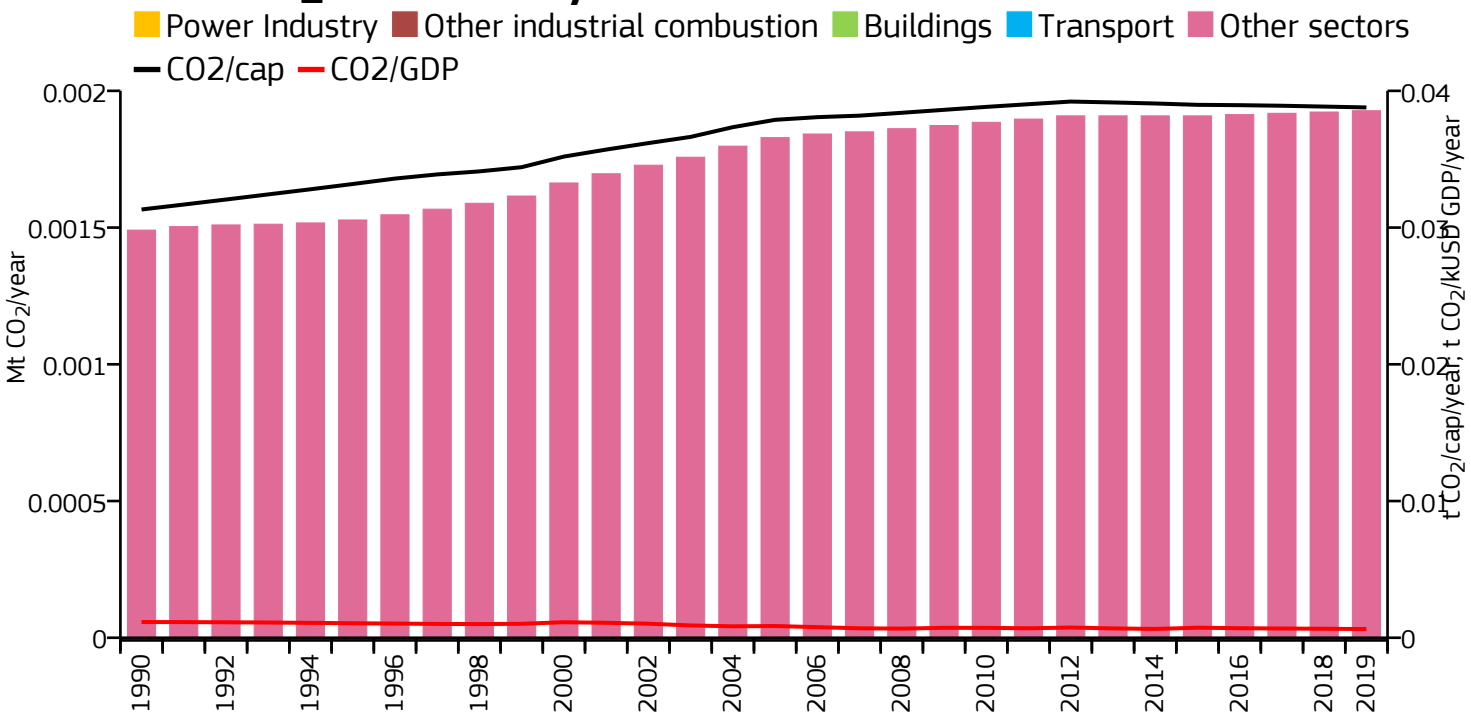
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.032	10.869	n/a	2.921k
2018	0.031	10.634	n/a	2.922k
2005	0.016	5.603	n/a	2.939k
1990	0.013	6.553	n/a	1.989k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+200%	+101%	+2%
Other industrial combustion	+176%	+67%	+2%
Buildings	-26%	+71%	+2%
Transport	+441%	+96%	+2%
Other sectors	+68%	+12%	+1%
All sectors	+144%	+93%	+2%

Faroes

Fossil CO_2 emissions by sector



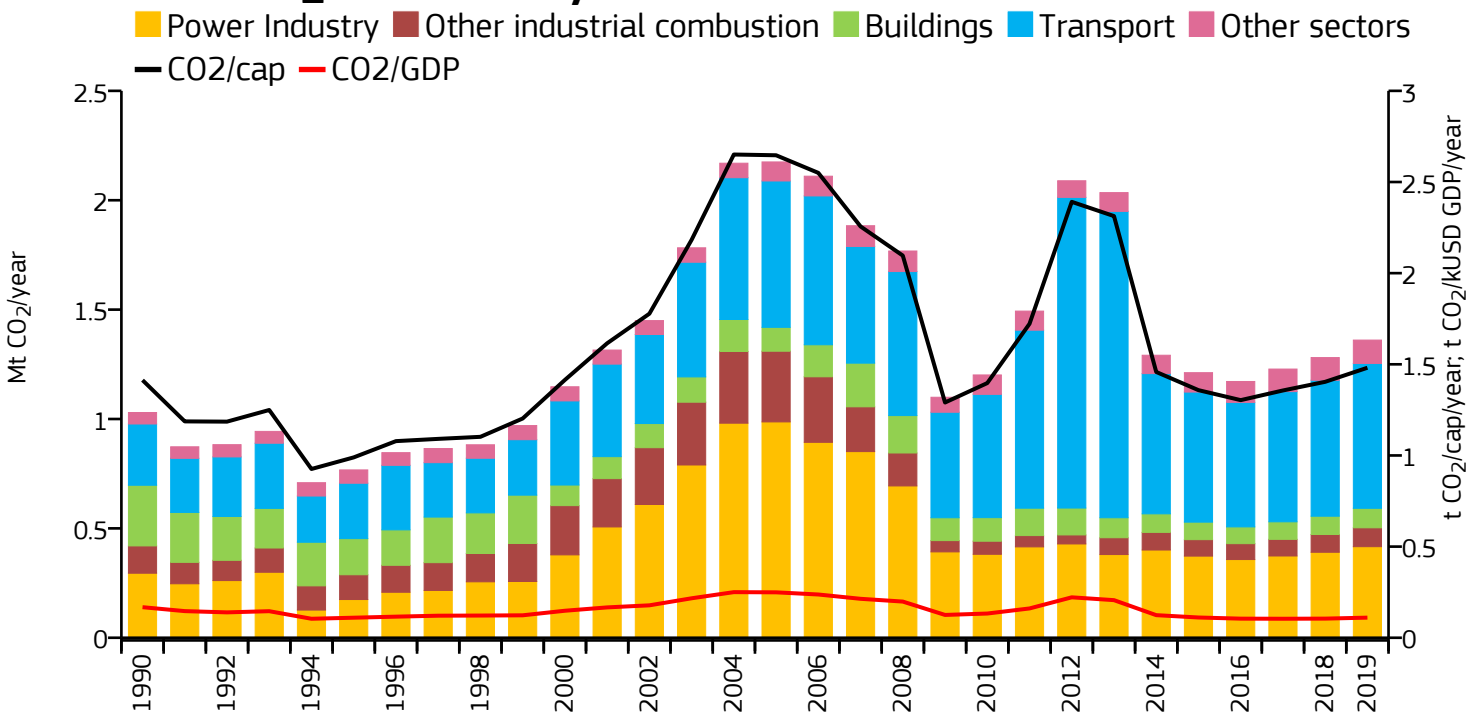
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.002	0.039	0.001	49.692k
2018	0.002	0.039	0.001	49.489k
2005	0.002	0.038	0.001	48.285k
1990	0.001	0.031	0.001	47.594k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	n/a	n/a	n/a
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	n/a	n/a	n/a
Other sectors	↗ +29%	→ +5%	→ 0%
All sectors	↗ +29%	→ +5%	→ 0%

Fiji

Fossil CO_2 emissions by sector



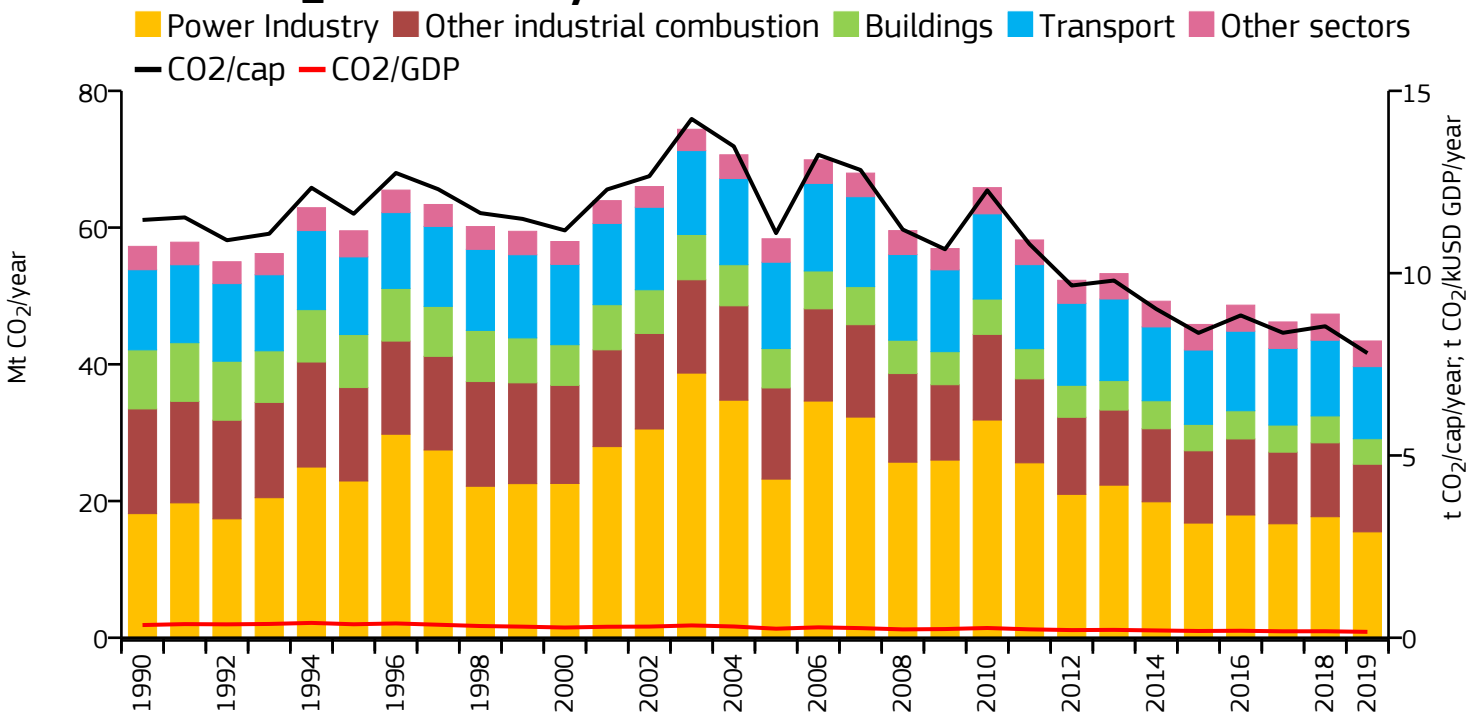
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.361	1.481	0.110	918.757k
2018	1.281	1.404	0.105	912.241k
2005	2.175	2.647	0.249	821.817k
1990	1.030	1.413	0.168	728.628k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+41%	-58%	+7%
Other industrial combustion	-31%	-73%	+6%
Buildings	-68%	-18%	+7%
Transport	+137%	-1%	+7%
Other sectors	+103%	+23%	+3%
All sectors	+32%	-37%	+6%

Finland

Fossil CO_2 emissions by sector



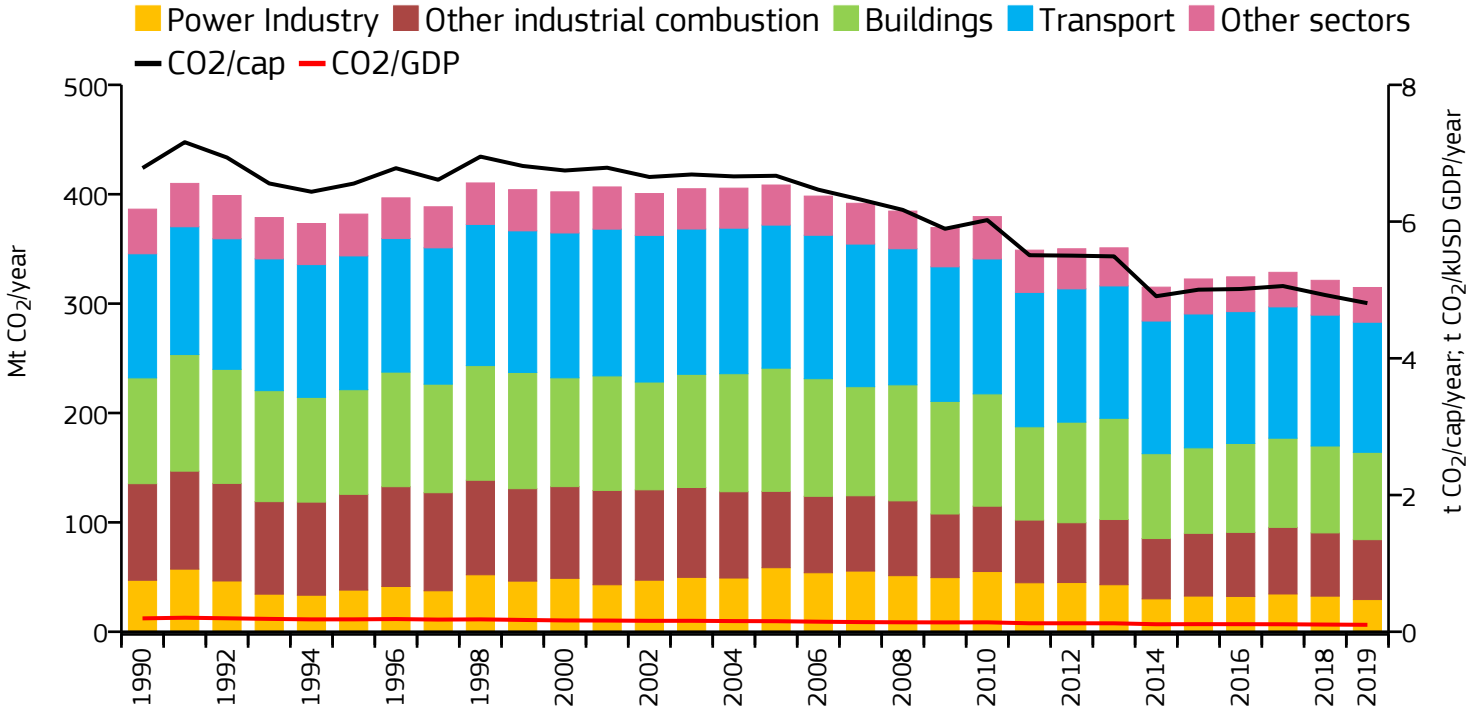
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	43.415	7.806	0.162	5.561M
2018	47.350	8.543	0.178	5.543M
2005	58.362	11.098	0.248	5.259M
1990	57.254	11.459	0.349	4.996M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-15%	-33%	-13%
Other industrial combustion	-35%	-26%	-8%
Buildings	-57%	-35%	-5%
Transport	-10%	-17%	-5%
Other sectors	+10%	+10%	-2%
All sectors	-24%	-26%	-8%

France and Monaco

Fossil CO_2 emissions by sector



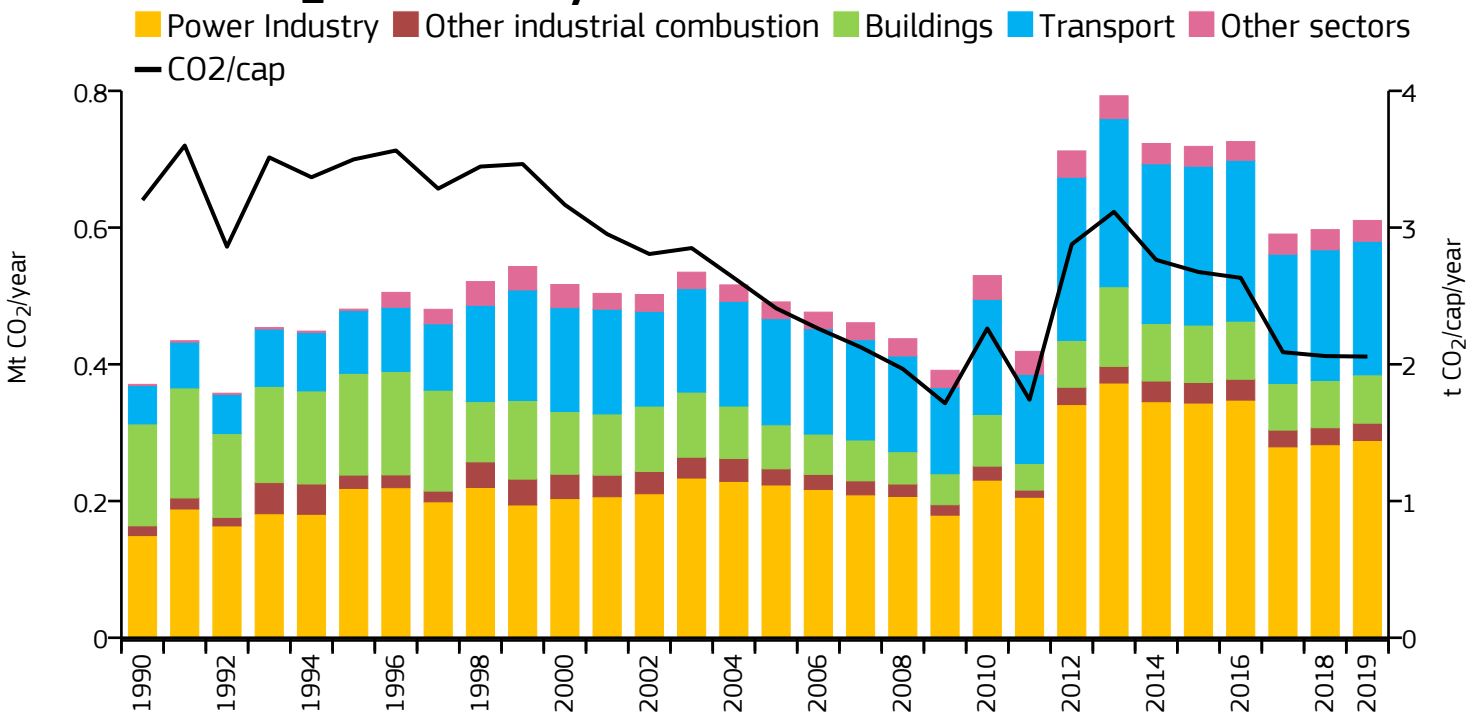
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	314.736	4.807	0.102	65.481M
2018	321.300	4.925	0.105	65.233M
2005	408.433	6.670	0.154	61.234M
1990	386.367	6.783	0.196	56.961M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↘ -37%	↘ -50%	↘ -10%
Other industrial combustion	↘ -38%	↘ -22%	→ -5%
Buildings	↘ -17%	↘ -29%	→ +1%
Transport	→ +5%	↘ -9%	→ -1%
Other sectors	↘ -22%	↘ -13%	→ 0%
All sectors	↘ -19%	↘ -23%	→ -2%

French Guiana

Fossil CO_2 emissions by sector



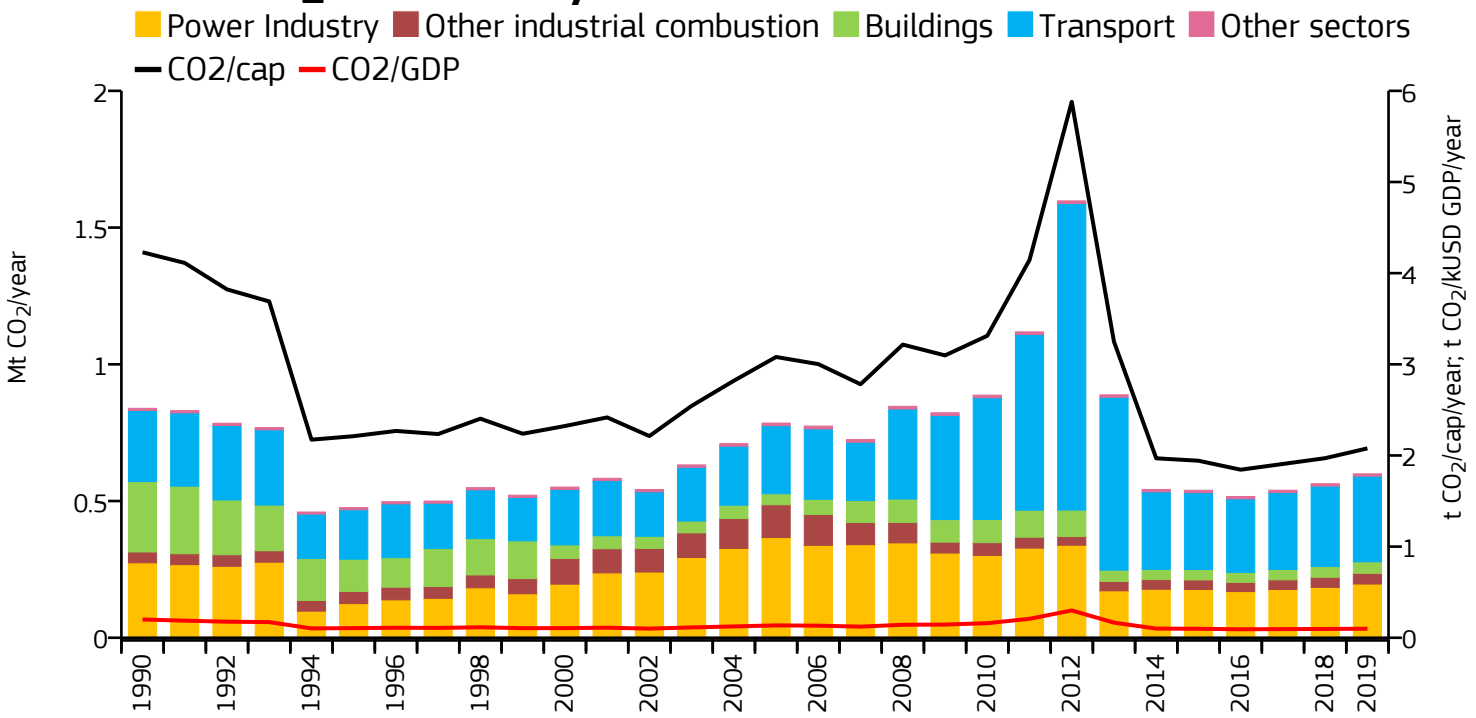
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.610	2.056	n/a	296.847k
2018	0.597	2.060	n/a	289.763k
2005	0.491	2.410	n/a	203.826k
1990	0.371	3.201	n/a	115.784k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+93%	+29%	+2%
Other industrial combustion	+77%	+7%	+2%
Buildings	-53%	+10%	+2%
Transport	+248%	+26%	+2%
Other sectors	+1647%	+25%	+4%
All sectors	+65%	+24%	+2%

French Polynesia

Fossil CO_2 emissions by sector

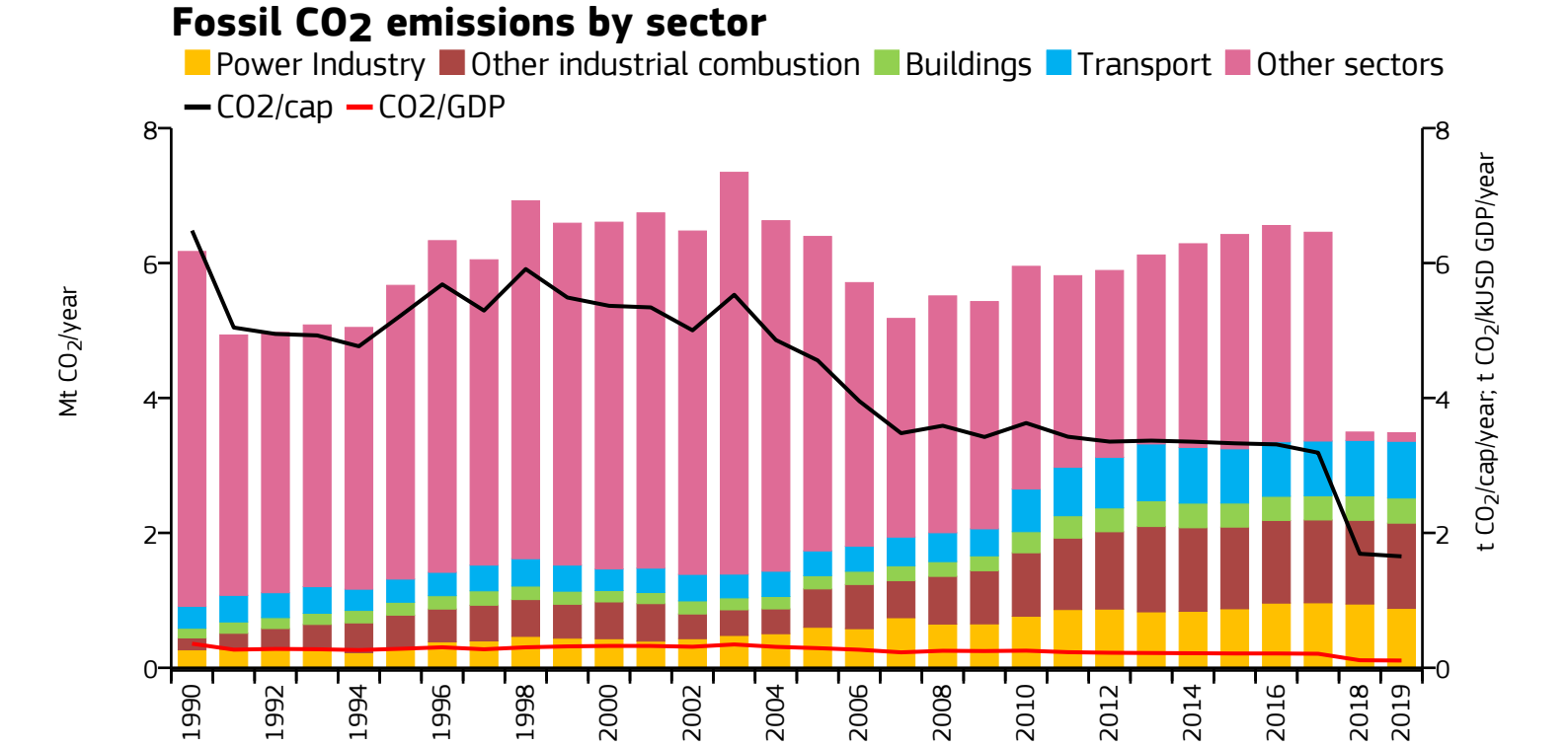


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.599	2.078	0.099	288.506k
2018	0.563	1.970	0.097	285.859k
2005	0.785	3.080	0.136	254.886k
1990	0.839	4.229	0.200	198.375k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-28%	-46%	+7%
Other industrial combustion	-1%	-67%	+7%
Buildings	-84%	+4%	+7%
Transport	+20%	+26%	+7%
Other sectors	+8%	-14%	0%
All sectors	-29%	-24%	+6%

Gabon



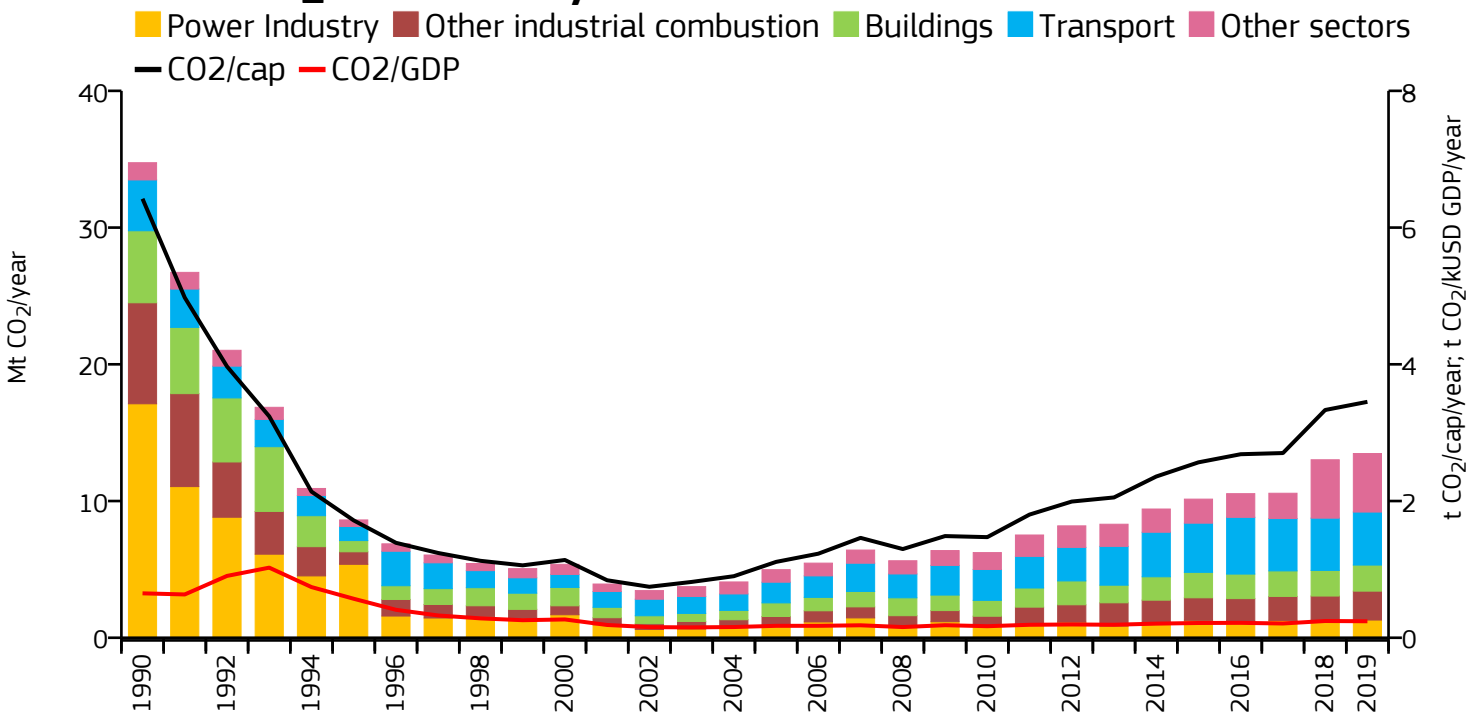
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.485	1.652	0.108	2.109M
2018	3.495	1.690	0.112	2.068M
2005	6.395	4.557	0.292	1.403M
1990	6.172	6.481	0.358	952.212k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+231%	+47%	-7%
Other industrial combustion	+615%	+122%	+2%
Buildings	+159%	+90%	+2%
Transport	+160%	+129%	+2%
Other sectors	-98%	-97%	+3%
All sectors	-44%	-46%	0%

Georgia

Fossil CO_2 emissions by sector

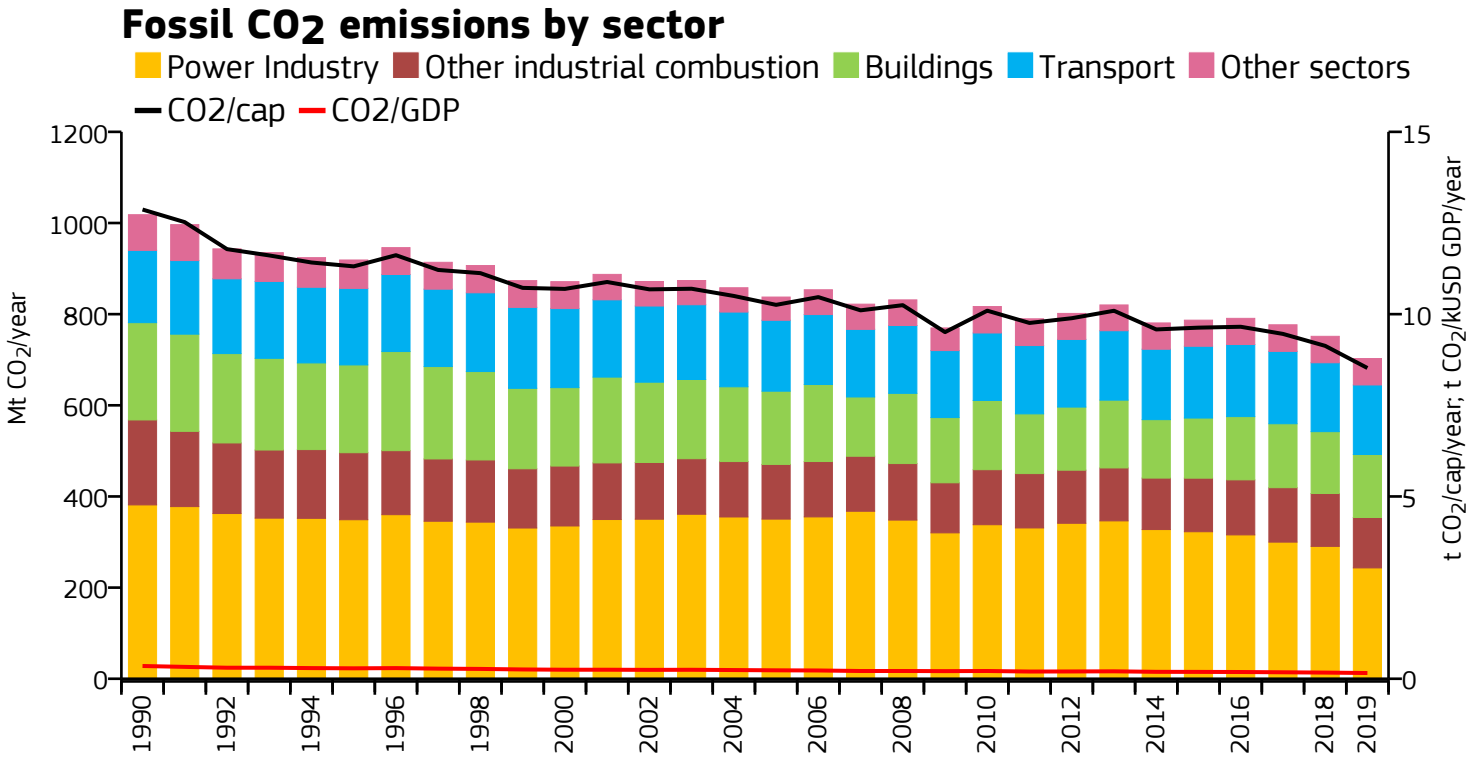


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	13.474	3.451	0.241	3.904M
2018	13.017	3.332	0.245	3.907M
2005	4.979	1.110	0.174	4.487M
1990	34.745	6.422	0.650	5.410M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-92%	+47%	+2%
Other industrial combustion	-71%	+215%	+19%
Buildings	-64%	+91%	+2%
Transport	+4%	+156%	+1%
Other sectors	+240%	+368%	0%
All sectors	-61%	+171%	+4%

Germany

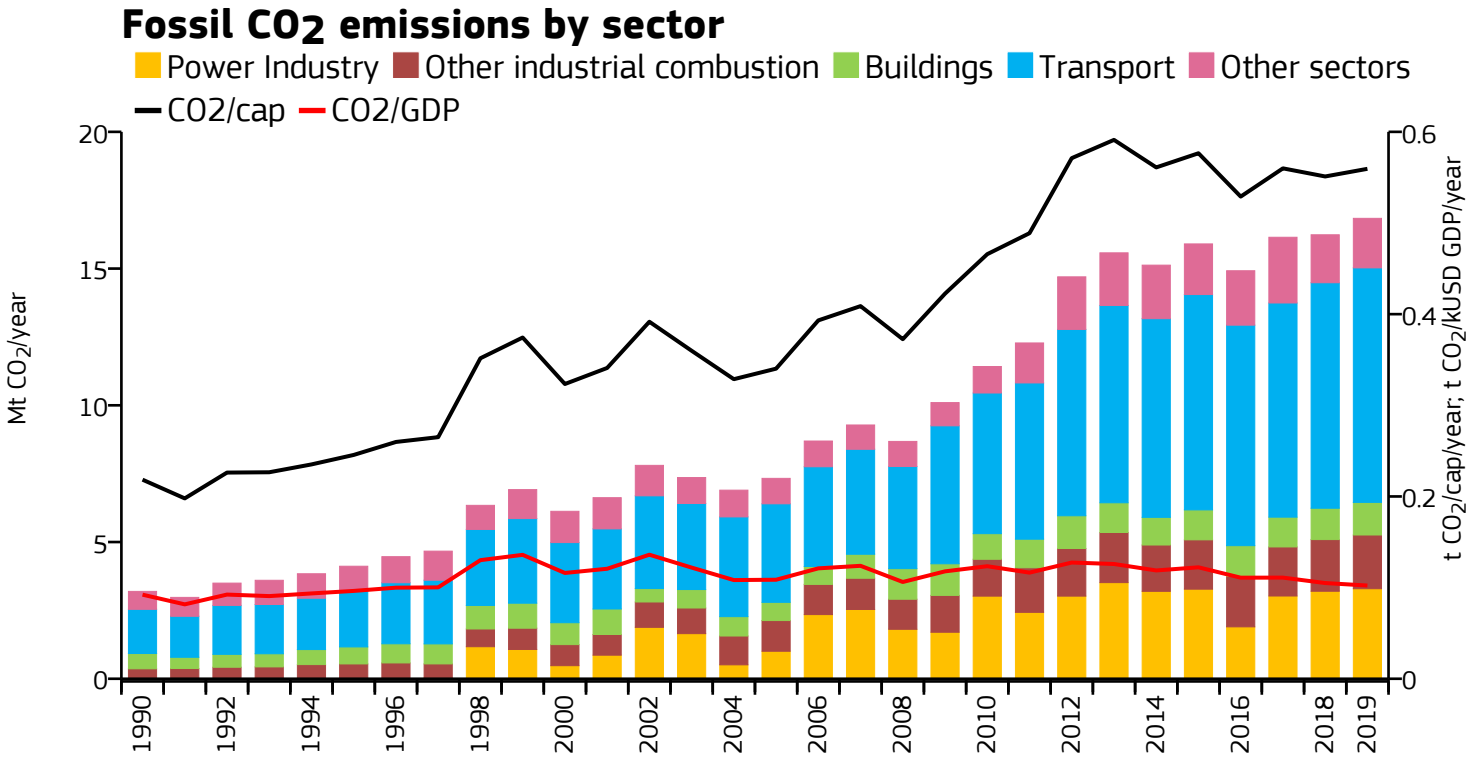


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	702.600	8.523	0.157	82.439M
2018	751.384	9.131	0.169	82.293M
2005	837.543	10.255	0.231	81.671M
1990	1018.221	12.870	0.350	79.118M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-36%	-31%	-16%
Other industrial combustion	-41%	-8%	-5%
Buildings	-35%	-14%	+2%
Transport	-4%	-2%	+1%
Other sectors	-26%	+14%	0%
All sectors	-31%	-16%	-6%

Ghana



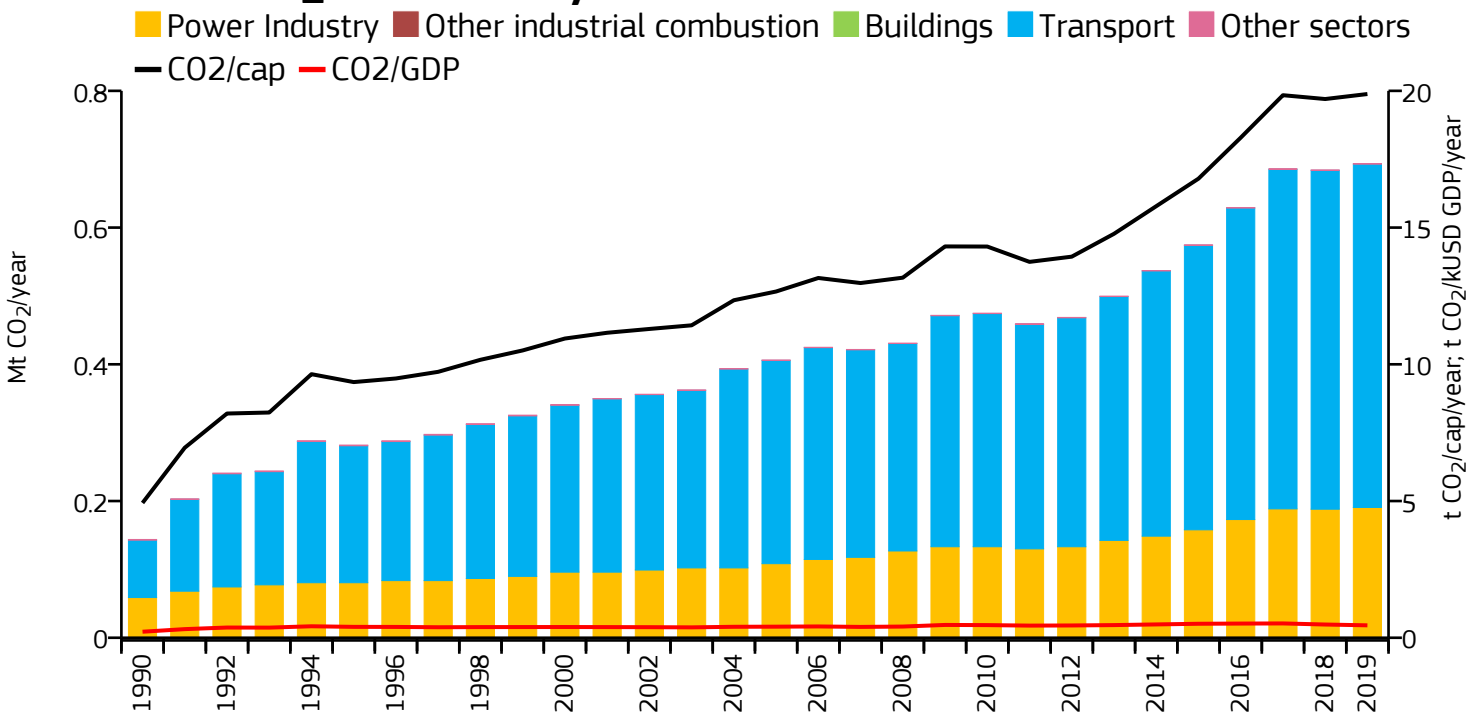
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	16.837	0.559	0.102	30.097M
2018	16.236	0.551	0.105	29.464M
2005	7.329	0.340	0.109	21.542M
1990	3.195	0.218	0.092	14.628M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry		+227%	+3%
Other industrial combustion	+441%	+75%	+4%
Buildings	+113%	+79%	+4%
Transport	+431%	+138%	+4%
Other sectors	+176%	+95%	+3%
All sectors	+427%	+130%	+4%

Gibraltar

Fossil CO_2 emissions by sector

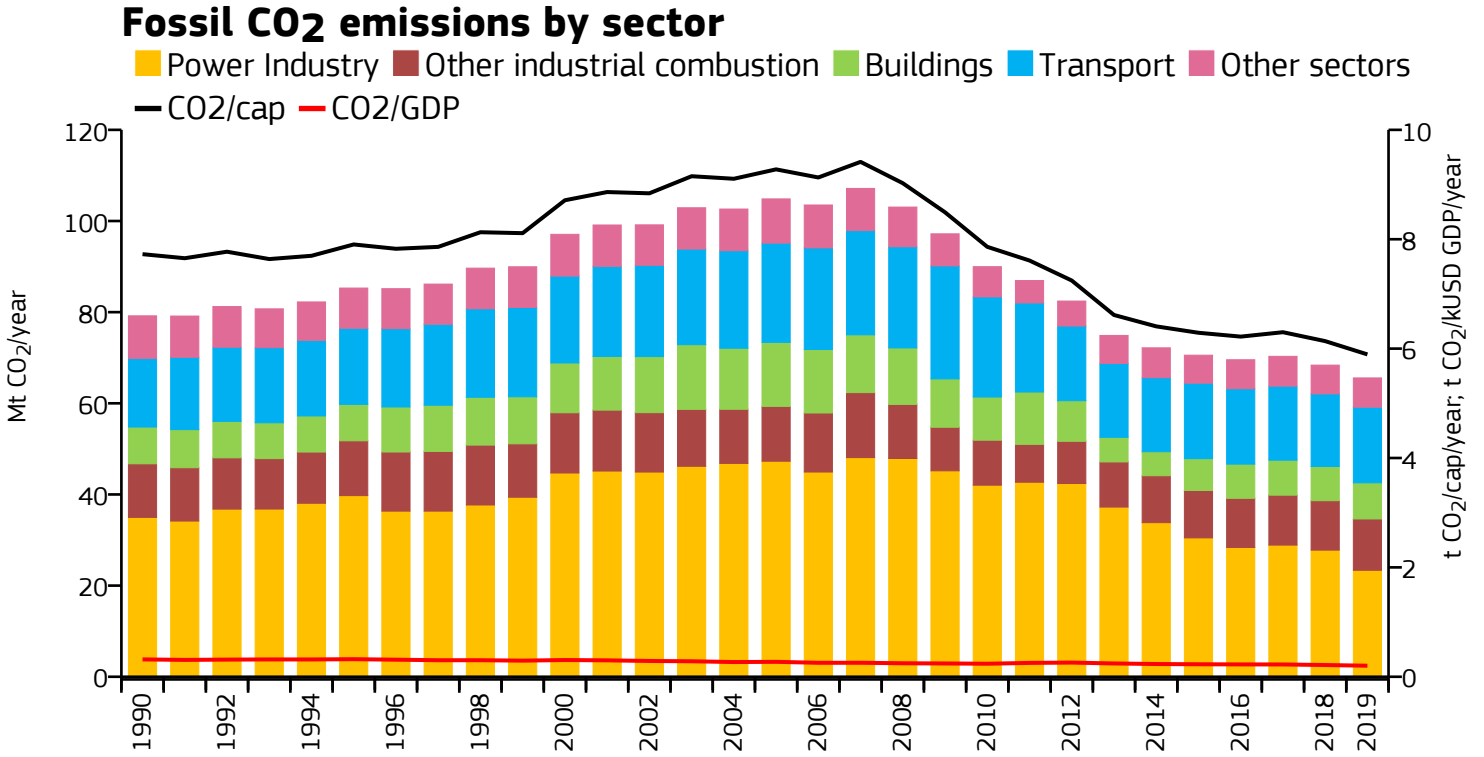


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.694	19.884	0.454	34.879k
2018	0.684	19.701	0.484	34.733k
2005	0.406	12.662	0.405	32.085k
1990	0.144	4.930	0.220	29.164k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+224%	+76%	+1%
Other industrial combustion	n/a	n/a	n/a
Buildings	n/a	n/a	n/a
Transport	+498%	+69%	+1%
Other sectors	-40%	+9%	0%
All sectors	+382%	+71%	+1%

Greece



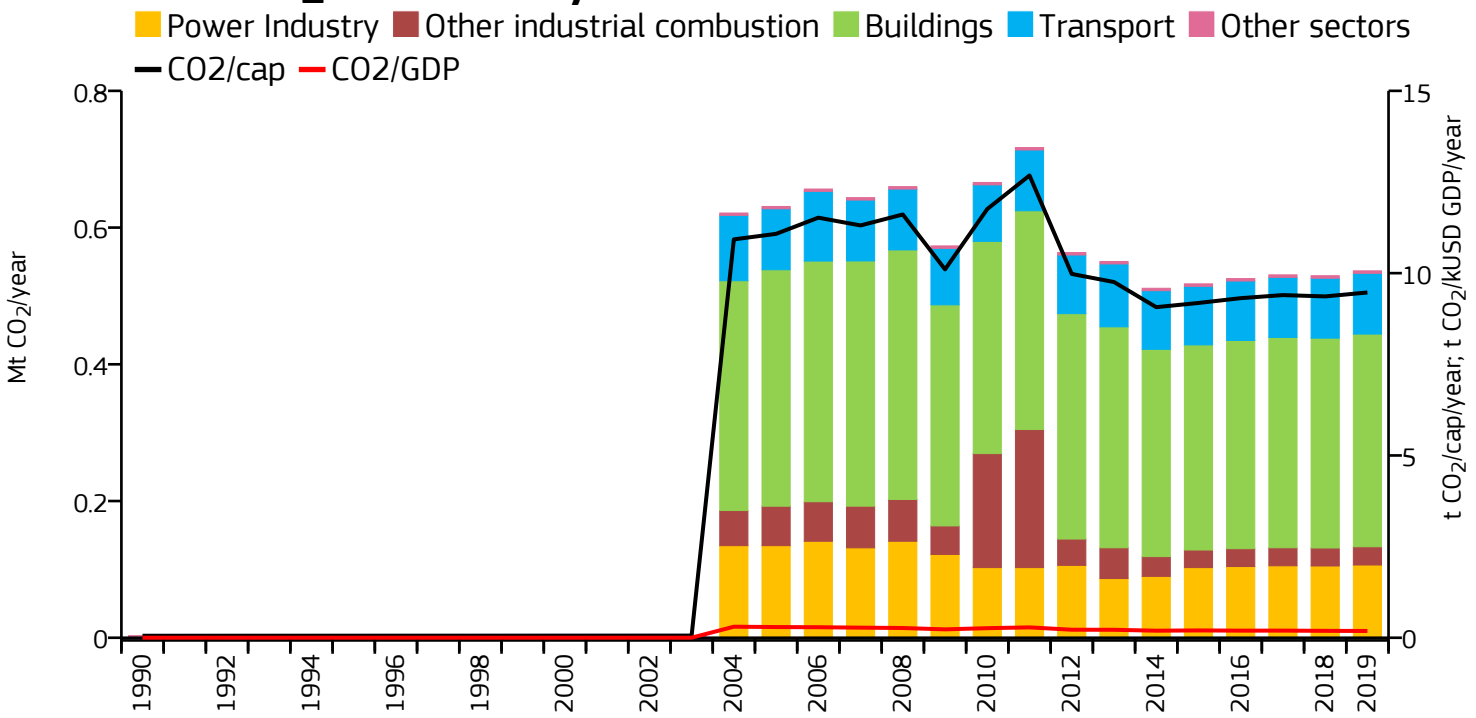
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	65.568	5.894	0.202	11.125M
2018	68.379	6.137	0.214	11.142M
2005	104.848	9.278	0.273	11.301M
1990	79.191	7.727	0.318	10.248M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-33%	-51%	-16%
Other industrial combustion	-4%	-6%	+4%
Buildings	-2%	-44%	+5%
Transport	+10%	-24%	+4%
Other sectors	-31%	-34%	+2%
All sectors	-17%	-37%	-4%

Greenland

Fossil CO_2 emissions by sector



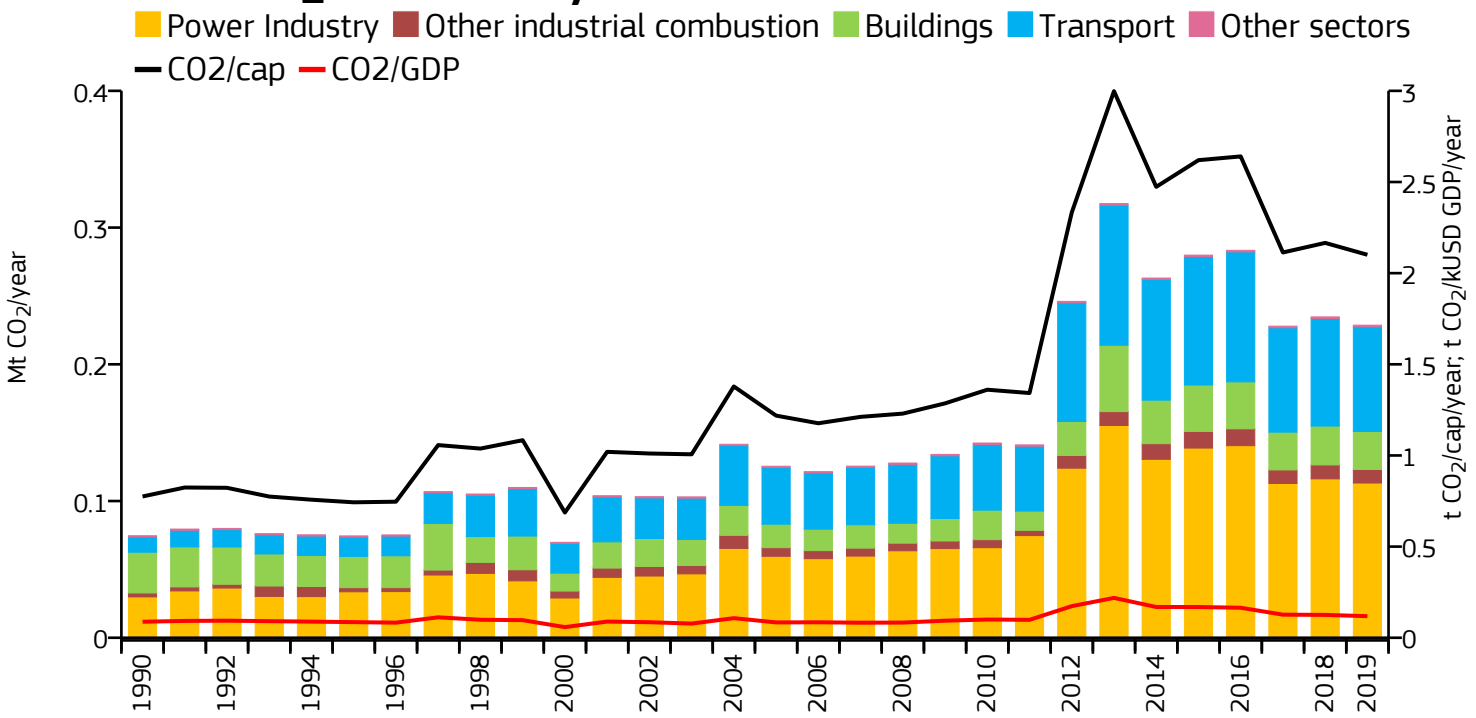
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.537	9.470	0.186	56.673k
2018	0.530	9.362	0.189	56.565k
2005	0.631	11.078	0.293	56.951k
1990	0.003	0.055	0.002	55.604k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗	↘ -21%	→ +1%
Other industrial combustion	↗	↘ -54%	→ +1%
Buildings	↗	↘ -10%	→ +1%
Transport	↗	→ 0%	→ +1%
Other sectors	↗ +18%	→ +4%	→ 0%
All sectors	↗	↘ -15%	→ +1%

Grenada

Fossil CO_2 emissions by sector



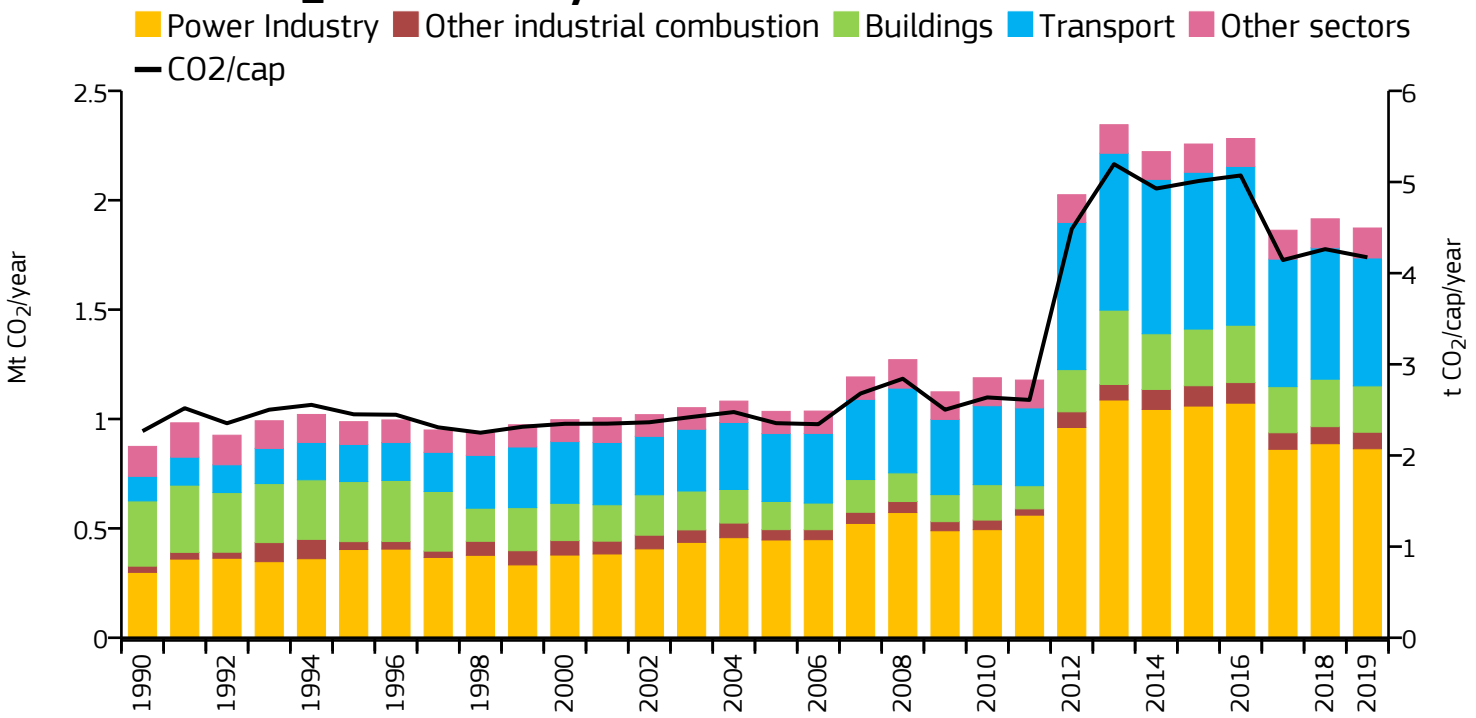
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.229	2.101	0.118	108.825k
2018	0.235	2.166	0.125	108.339k
2005	0.125	1.219	0.084	102.949k
1990	0.075	0.775	0.088	96.283k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+279%	+90%	-3%
Other industrial combustion	+248%	+58%	-3%
Buildings	-7%	+61%	-2%
Transport	+583%	+85%	-3%
Other sectors	+43%	+21%	+2%
All sectors	+206%	+82%	-3%

Guadeloupe

Fossil CO_2 emissions by sector



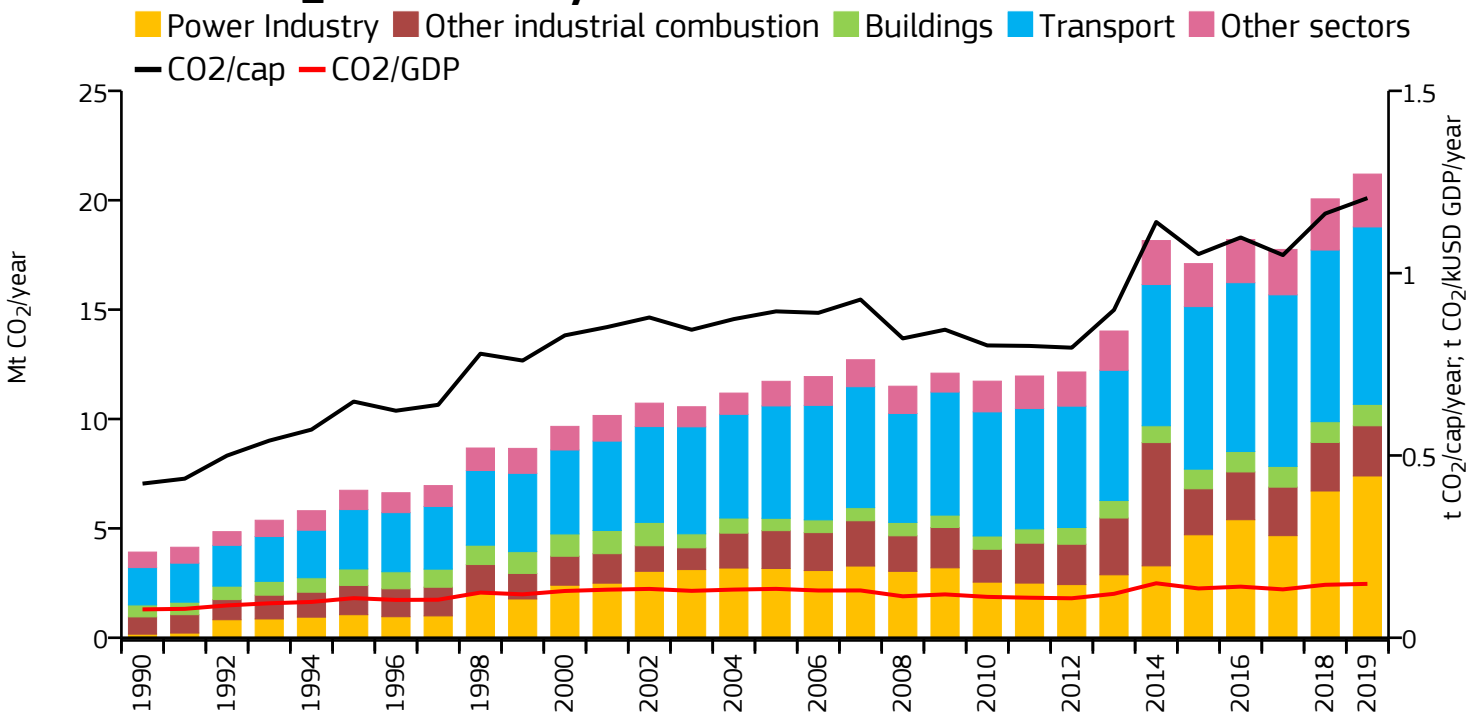
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.873	4.174	n/a	448.798k
2018	1.915	4.263	n/a	449.173k
2005	1.035	2.354	n/a	439.552k
1990	0.875	2.267	n/a	385.878k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+189%	+93%	-3%
Other industrial combustion	+166%	+60%	-3%
Buildings	-29%	+64%	-2%
Transport	+421%	+88%	-3%
Other sectors	0%	+35%	+3%
All sectors	+114%	+81%	-2%

Guatemala

Fossil CO_2 emissions by sector



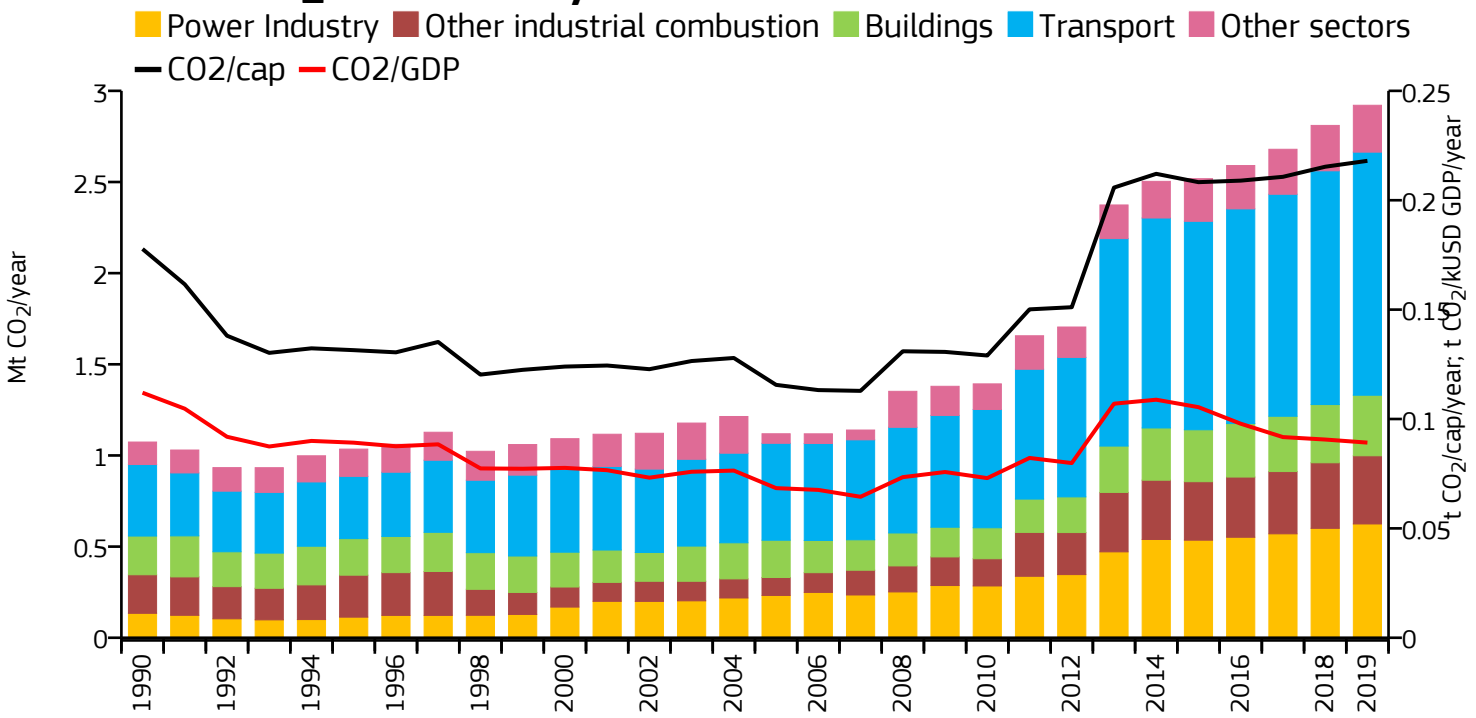
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	21.196	1.206	0.148	17.578M
2018	20.062	1.163	0.145	17.245M
2005	11.723	0.895	0.134	13.096M
1990	3.917	0.423	0.078	9.264M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+4405%	+134%	+10%
Other industrial combustion	+191%	+33%	+3%
Buildings	+79%	+74%	+3%
Transport	+375%	+58%	+3%
Other sectors	+241%	+115%	+3%
All sectors	+441%	+81%	+6%

Guinea

Fossil CO_2 emissions by sector

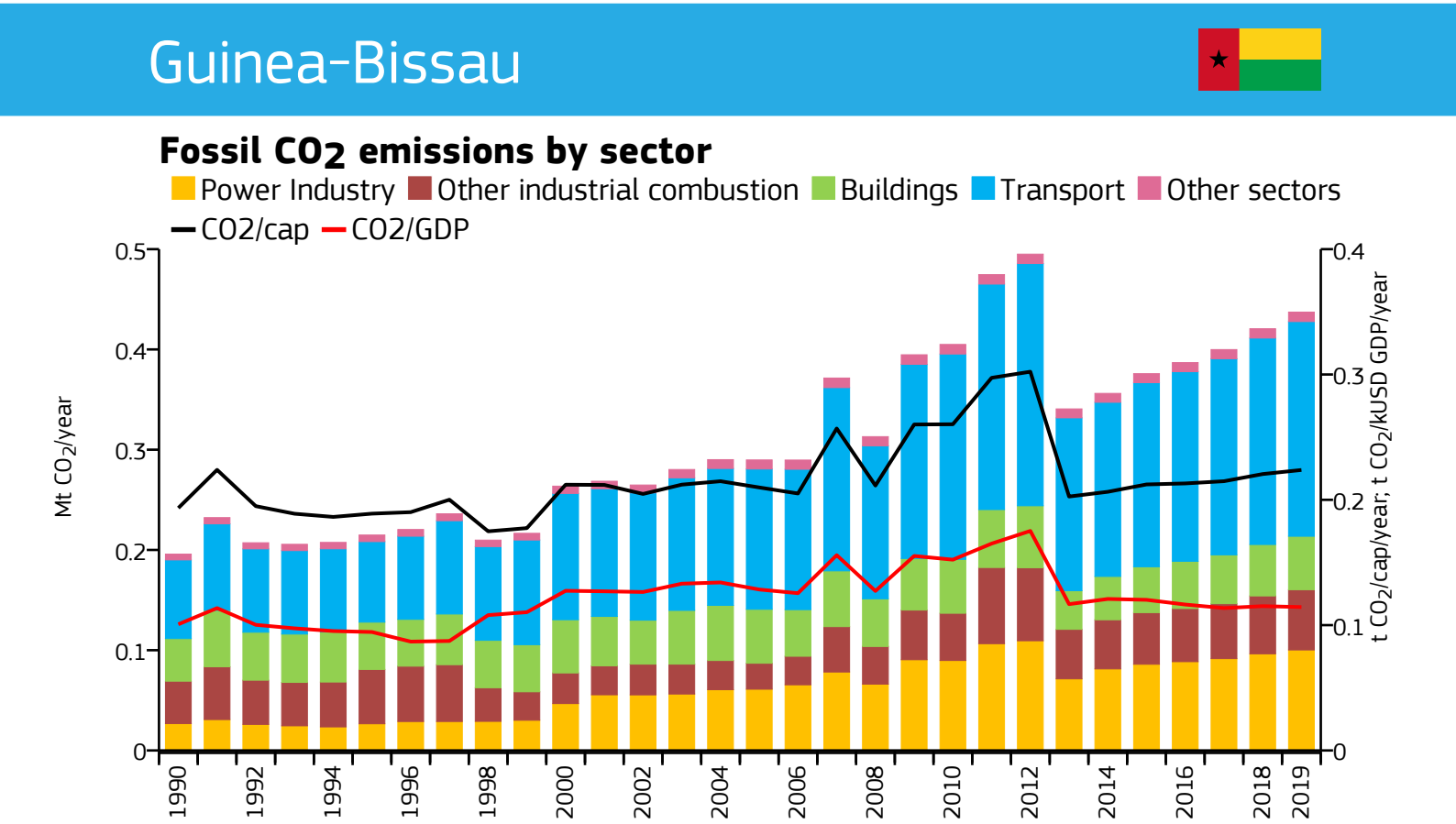


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.921	0.218	0.089	13.398M
2018	2.810	0.215	0.091	13.053M
2005	1.119	0.116	0.068	9.680M
1990	1.074	0.178	0.112	6.041M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+366%	+169%	+4%
Other industrial combustion	+77%	+280%	+4%
Buildings	+56%	+62%	+4%
Transport	+240%	+151%	+4%
Other sectors	+108%	+391%	+3%
All sectors	+172%	+161%	+4%

Guinea-Bissau

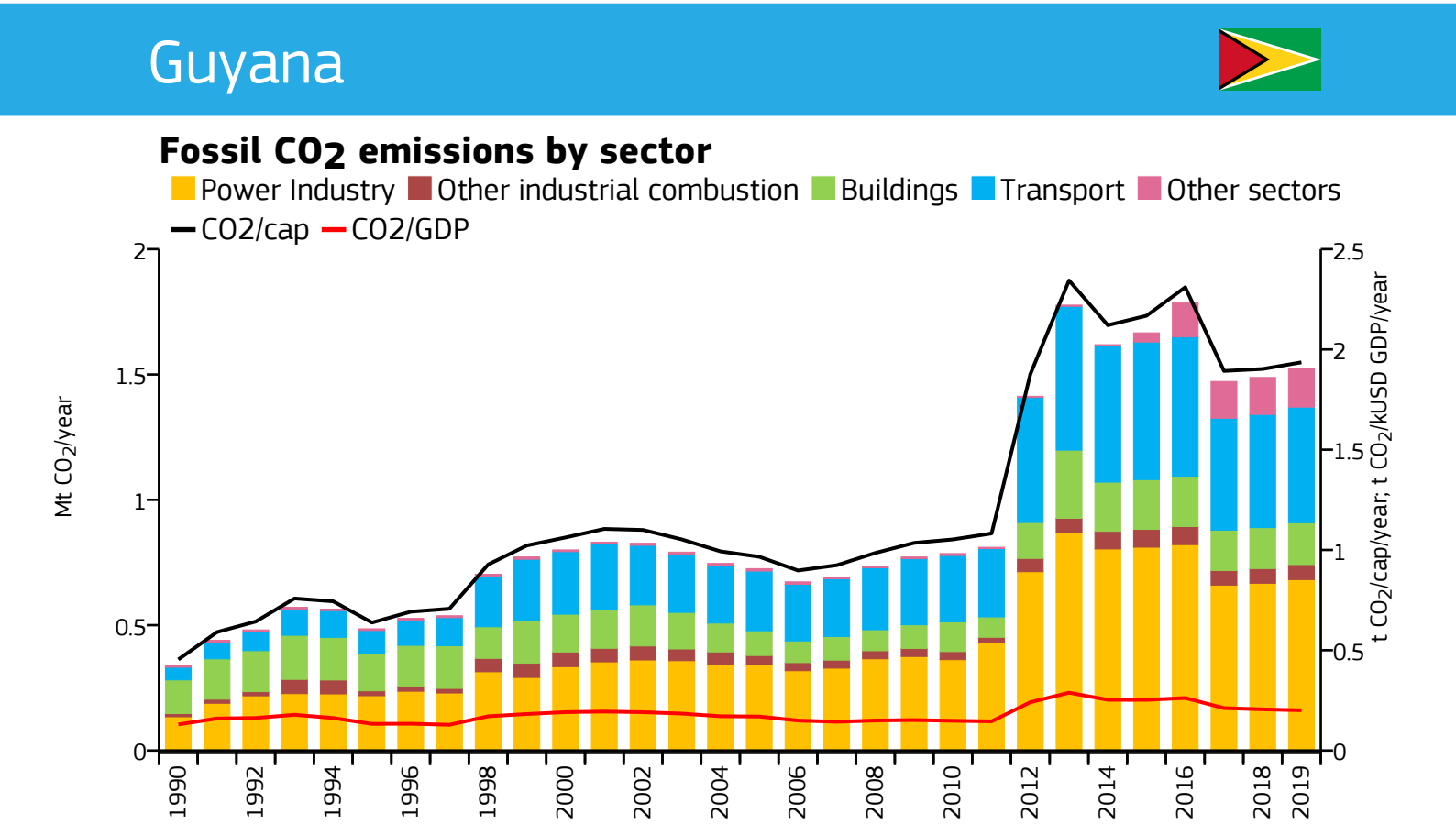


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.437	0.224	0.114	1.954M
2018	0.421	0.221	0.115	1.907M
2005	0.290	0.210	0.128	1.381M
1990	0.196	0.193	0.101	1.012M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+274%	+64%	+4%
Other industrial combustion	+42%	+132%	+4%
Buildings	+26%	-1%	+4%
Transport	+173%	+53%	+4%
Other sectors	+63%	+4%	+1%
All sectors	+123%	+51%	+4%

Guyana

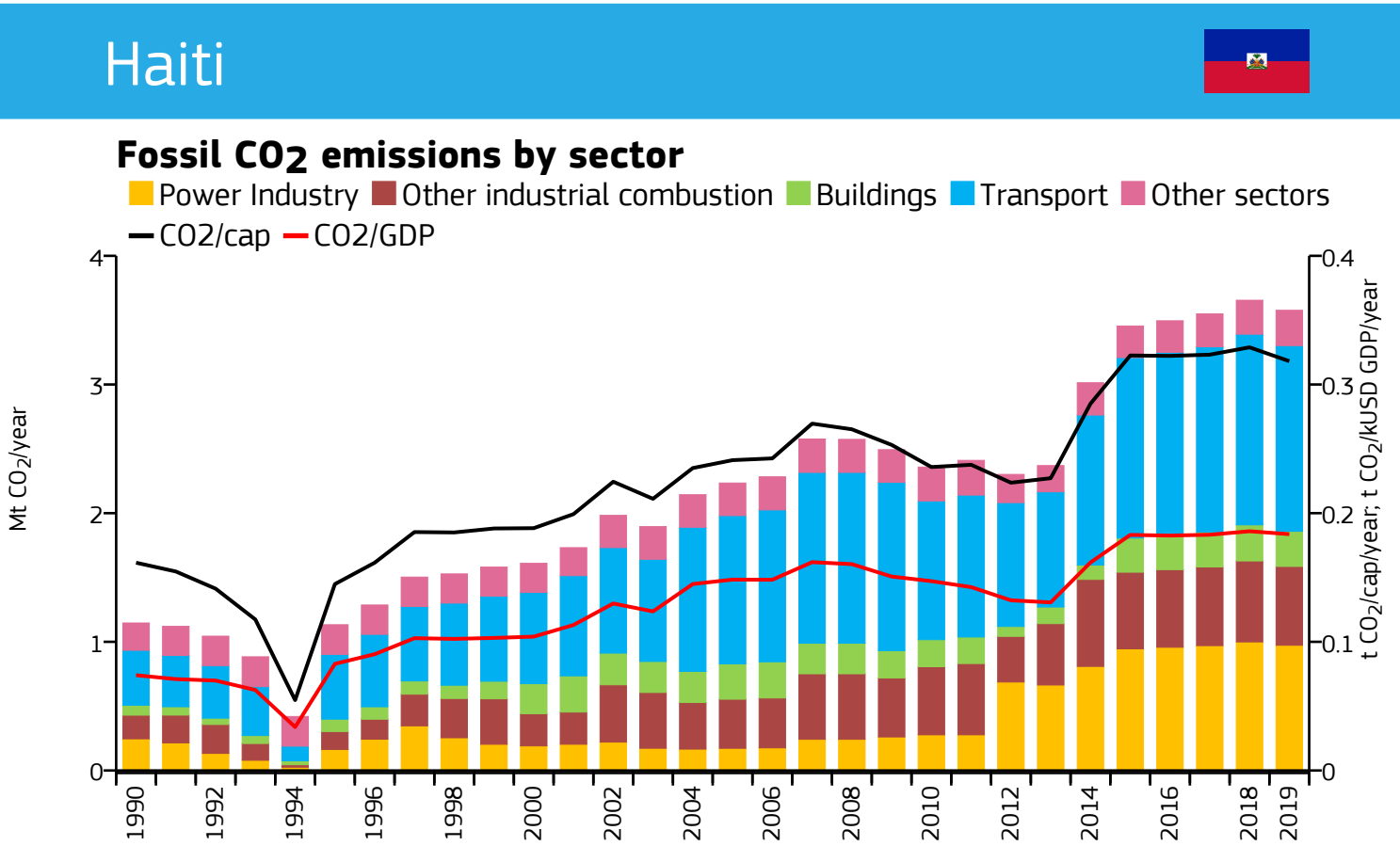


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.522	1.936	0.200	786.508k
2018	1.488	1.902	0.205	782.225k
2005	0.725	0.966	0.169	750.946k
1990	0.337	0.454	0.130	743.309k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+407%	+99%	+2%
Other industrial combustion	+366%	+65%	+2%
Buildings	+25%	+69%	+2%
Transport	+814%	+94%	+2%
Other sectors	+2774%	+1470%	+3%
All sectors	+351%	+110%	+2%

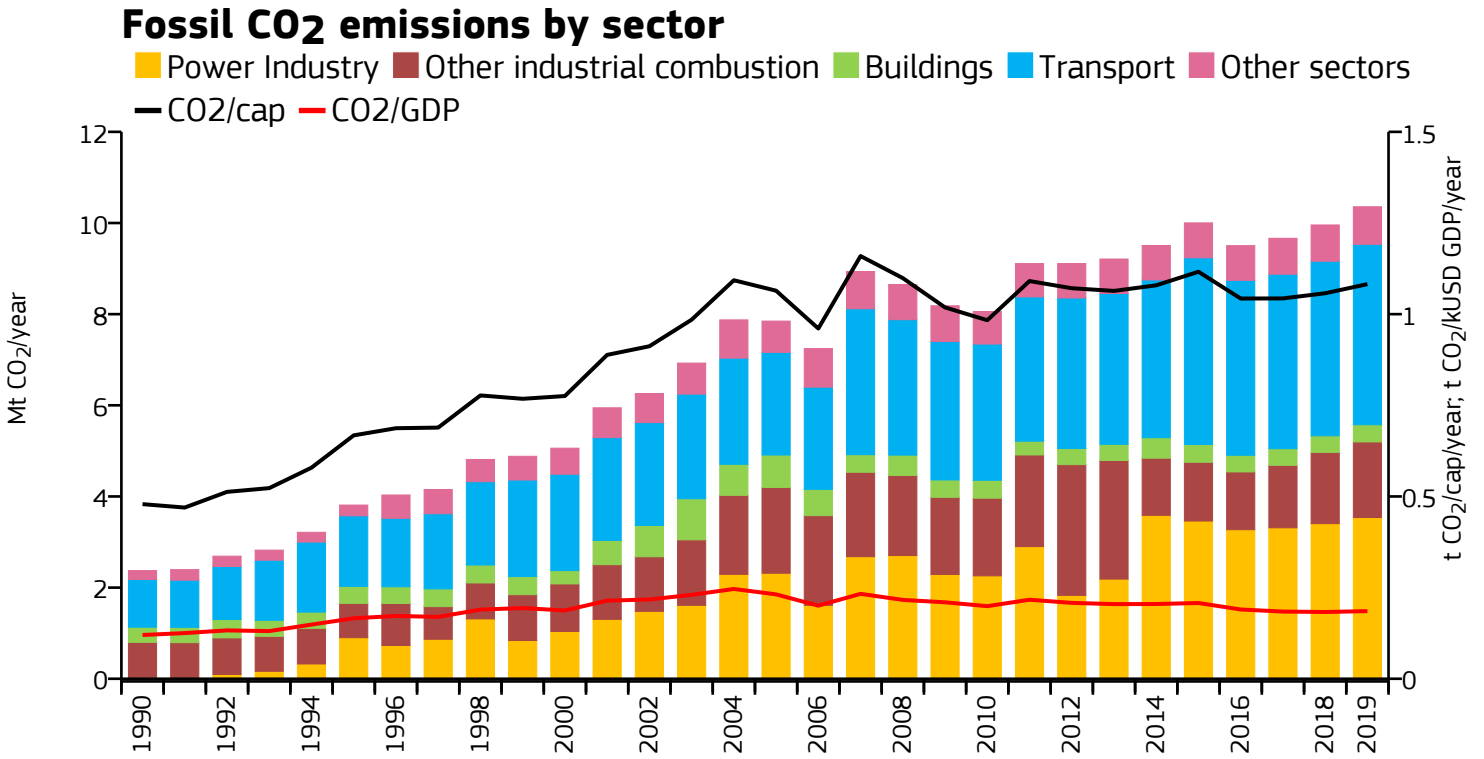
Haiti



Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.577	0.318	0.184	11.243M
2018	3.655	0.329	0.186	11.113M
2005	2.234	0.241	0.148	9.263M
1990	1.147	0.161	0.074	7.100M

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+295%	+464%	-3%
Other industrial combustion	+234%	+61%	-3%
Buildings	+253%	-1%	-3%
Transport	+238%	+25%	-3%
Other sectors	+29%	+8%	+4%
All sectors	+212%	+60%	-2%

Honduras



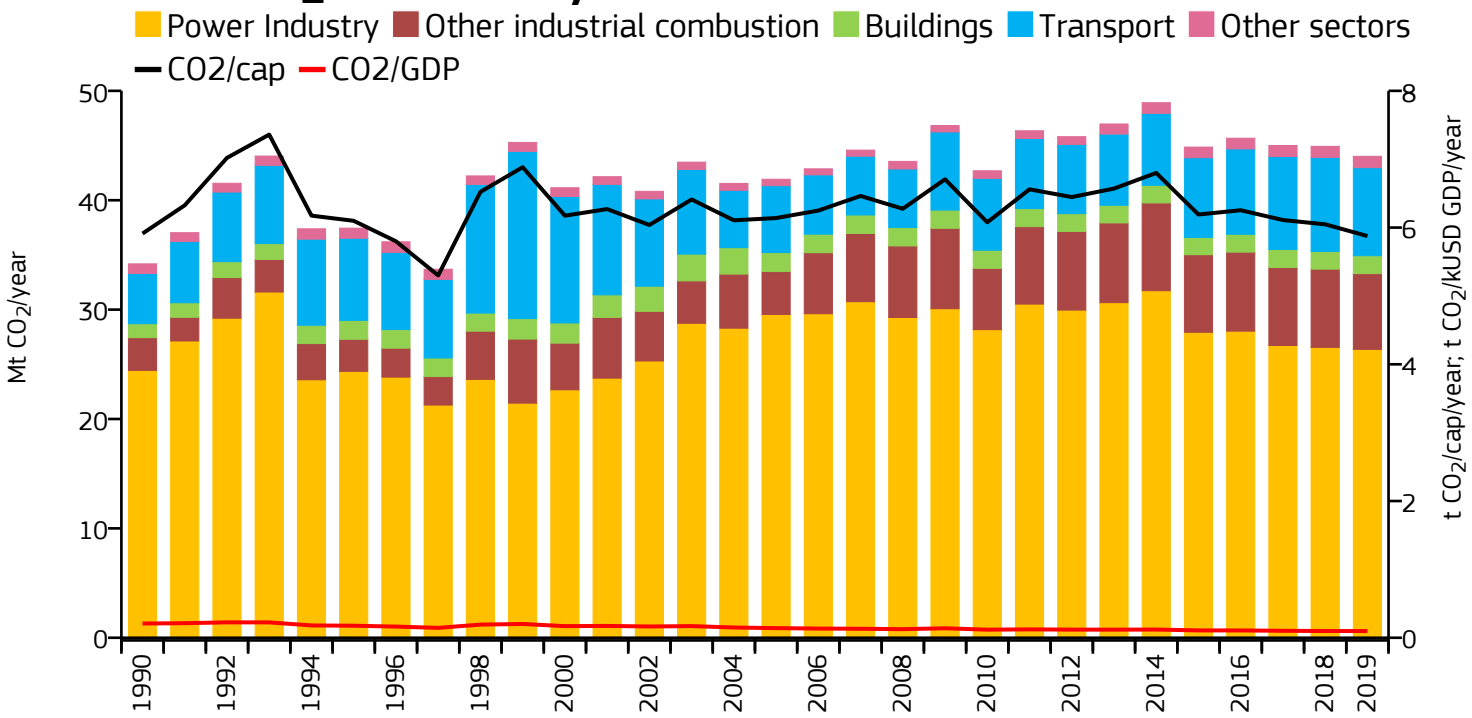
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	10.356	1.082	0.186	9.569M
2018	9.957	1.057	0.183	9.417M
2005	7.848	1.064	0.231	7.373M
1990	2.373	0.479	0.120	4.955M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+15605%	+53%	+4%
Other industrial combustion	+114%	-12%	+6%
Buildings	+13%	-47%	+3%
Transport	+279%	+76%	+3%
Other sectors	+320%	+20%	+4%
All sectors	+336%	+32%	+4%

Hong Kong

Fossil CO_2 emissions by sector

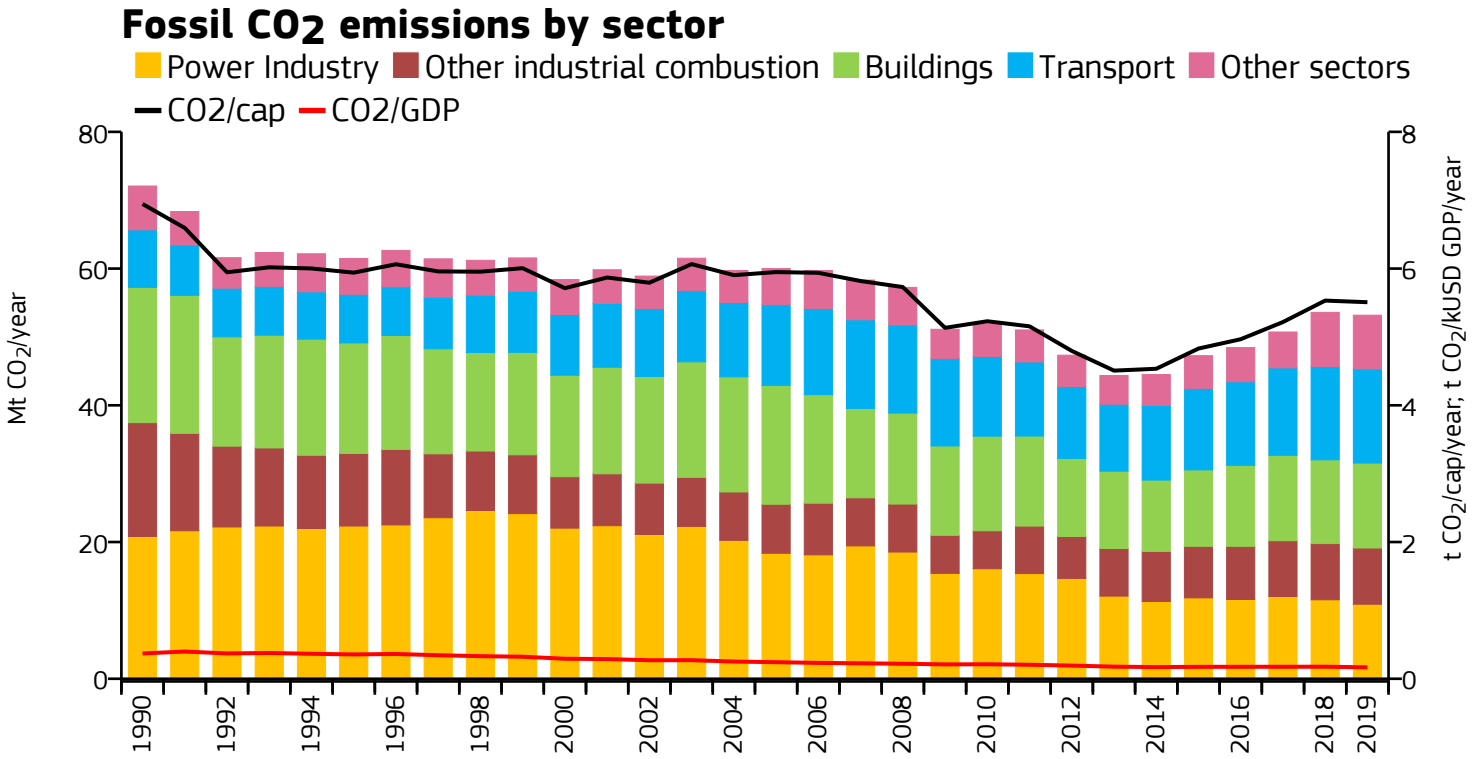


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	44.016	5.876	0.098	7.491M
2018	44.927	6.048	0.099	7.429M
2005	41.918	6.139	0.141	6.828M
1990	34.182	5.912	0.208	5.781M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+8%	-11%	-1%
Other industrial combustion	+131%	+77%	-3%
Buildings	+28%	-6%	+2%
Transport	+75%	+32%	-6%
Other sectors	+18%	+77%	+3%
All sectors	+29%	+5%	-2%

Hungary



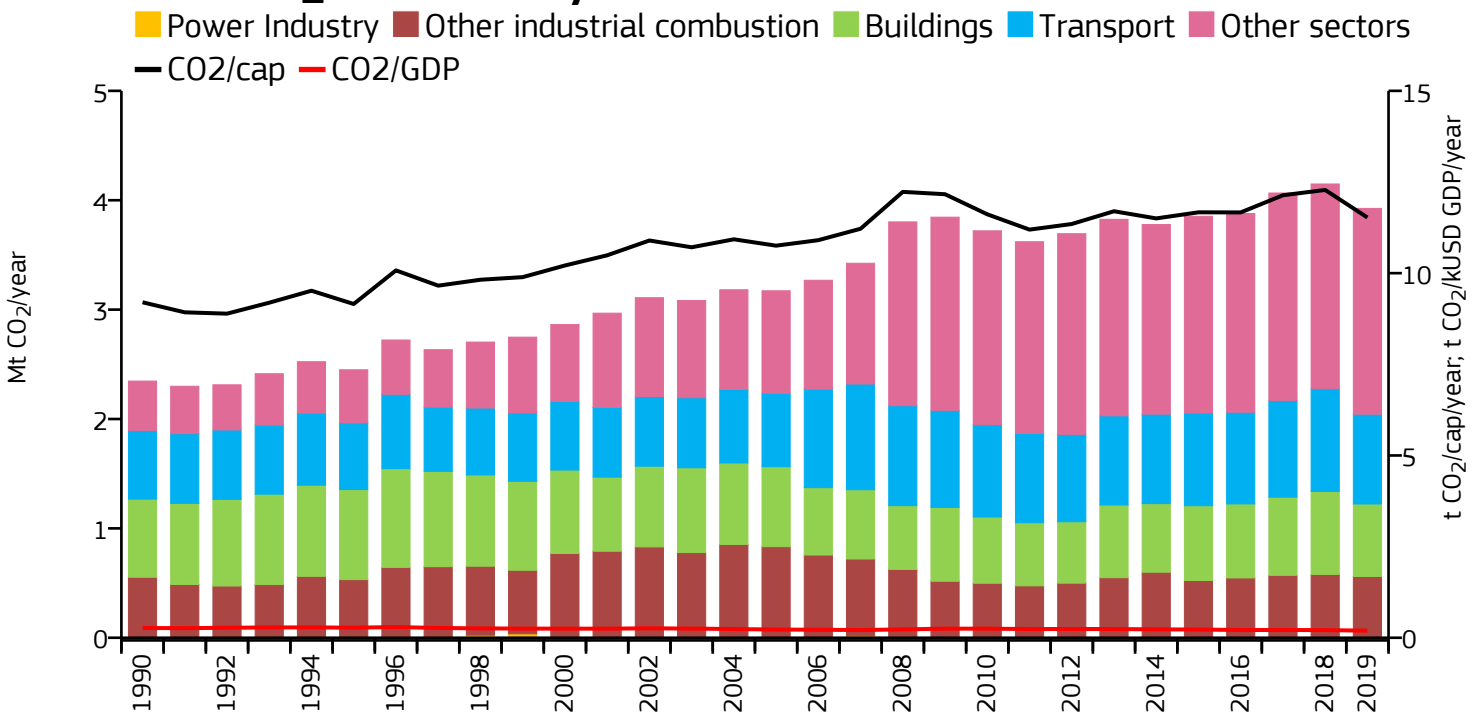
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	53.183	5.508	0.167	9.655M
2018	53.595	5.532	0.176	9.689M
2005	60.000	5.949	0.242	10.086M
1990	72.075	6.945	0.370	10.378M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-48%	-41%	-6%
Other industrial combustion	-51%	+15%	0%
Buildings	-37%	-29%	+1%
Transport	+64%	+17%	+1%
Other sectors	+22%	+48%	-1%
All sectors	-26%	-11%	-1%

Iceland

Fossil CO_2 emissions by sector



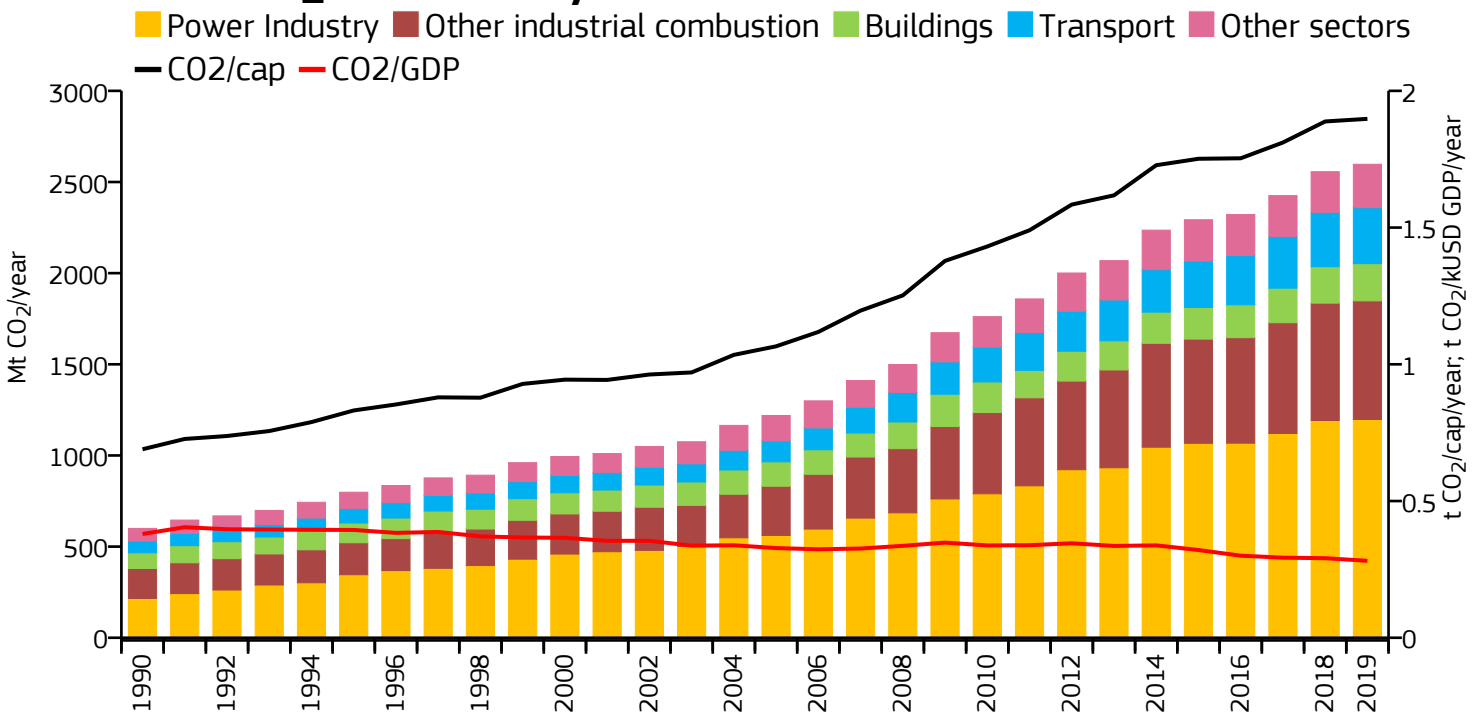
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.925	11.526	0.194	340.566k
2018	4.149	12.282	0.209	337.780k
2005	3.172	10.754	0.225	294.979k
1990	2.347	9.201	0.268	255.043k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-3%	-52%	-13%
Other industrial combustion	+1%	-33%	-3%
Buildings	-7%	-9%	-13%
Transport	+31%	+22%	-13%
Other sectors	+317%	+101%	+1%
All sectors	+67%	+24%	-5%

India

Fossil CO_2 emissions by sector



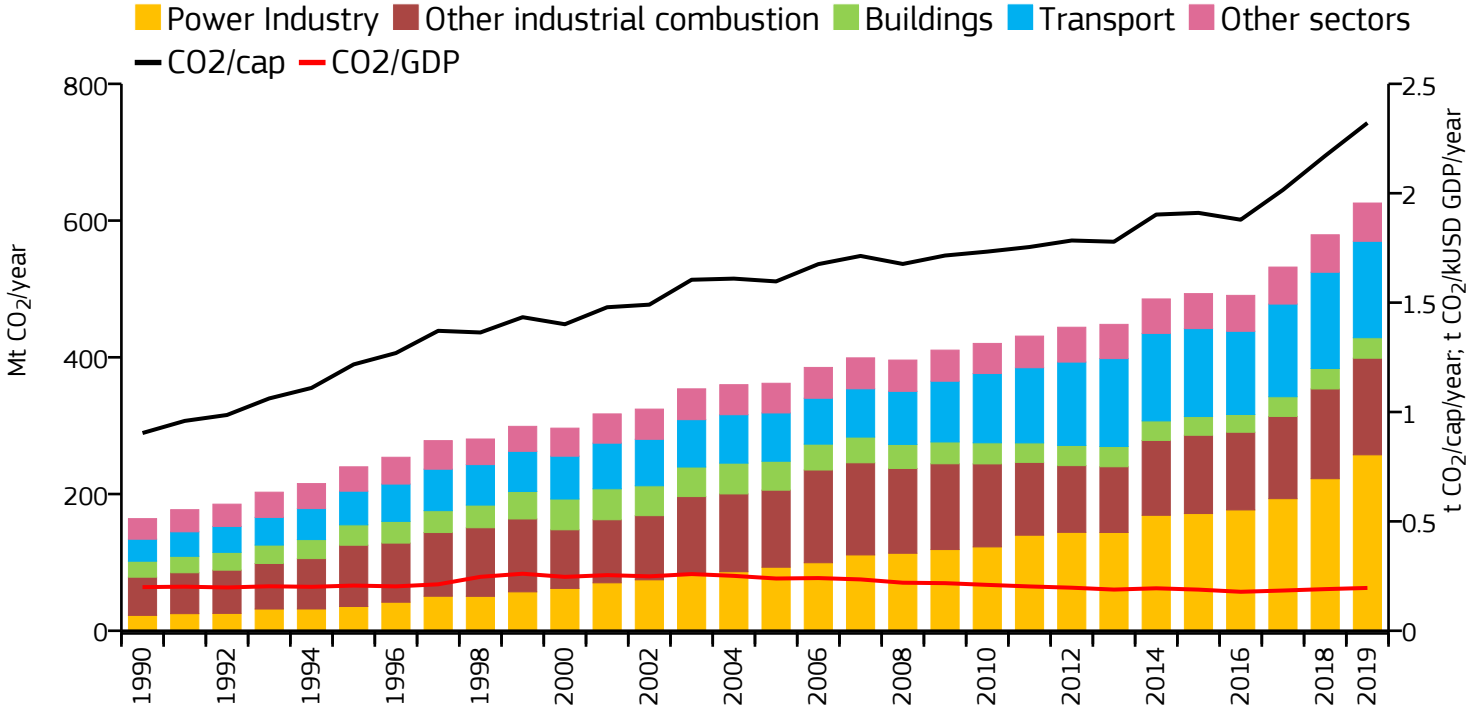
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2597.360	1.898	0.281	1.369G
2018	2556.547	1.888	0.291	1.354G
2005	1219.351	1.066	0.328	1.144G
1990	599.824	0.689	0.380	870.133M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+455%	+113%	+1%
Other industrial combustion	+296%	+141%	+1%
Buildings	+138%	+53%	+2%
Transport	+375%	+168%	+3%
Other sectors	+244%	+71%	+7%
All sectors	+333%	+113%	+2%

Indonesia

Fossil CO_2 emissions by sector



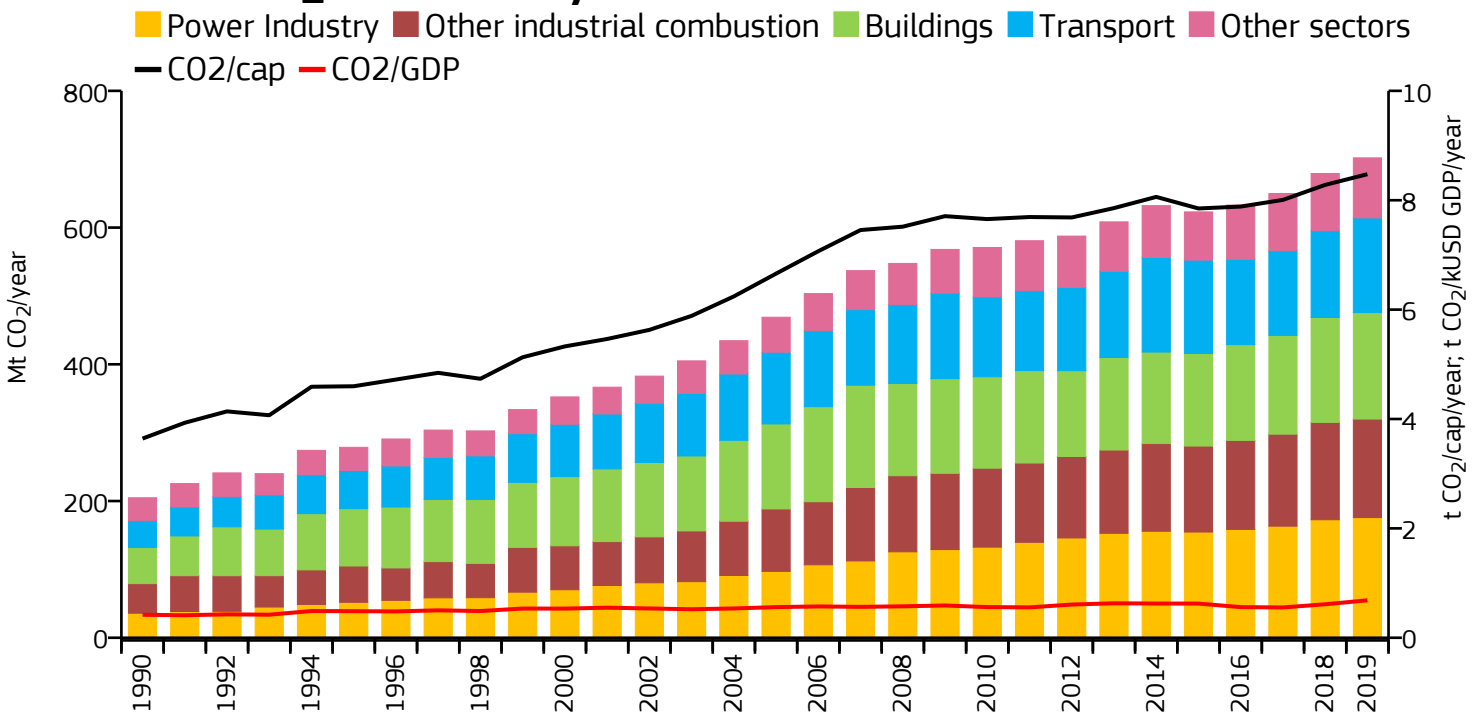
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	625.663	2.321	0.196	269.536M
2018	579.228	2.171	0.190	266.795M
2005	362.041	1.597	0.239	226.713M
1990	163.992	0.904	0.199	181.437M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1044%	+177%	+16%
Other industrial combustion	+153%	+25%	+8%
Buildings	+28%	-29%	0%
Transport	+338%	+100%	0%
Other sectors	+86%	+29%	+2%
All sectors	+282%	+73%	+8%

Iran

Fossil CO_2 emissions by sector

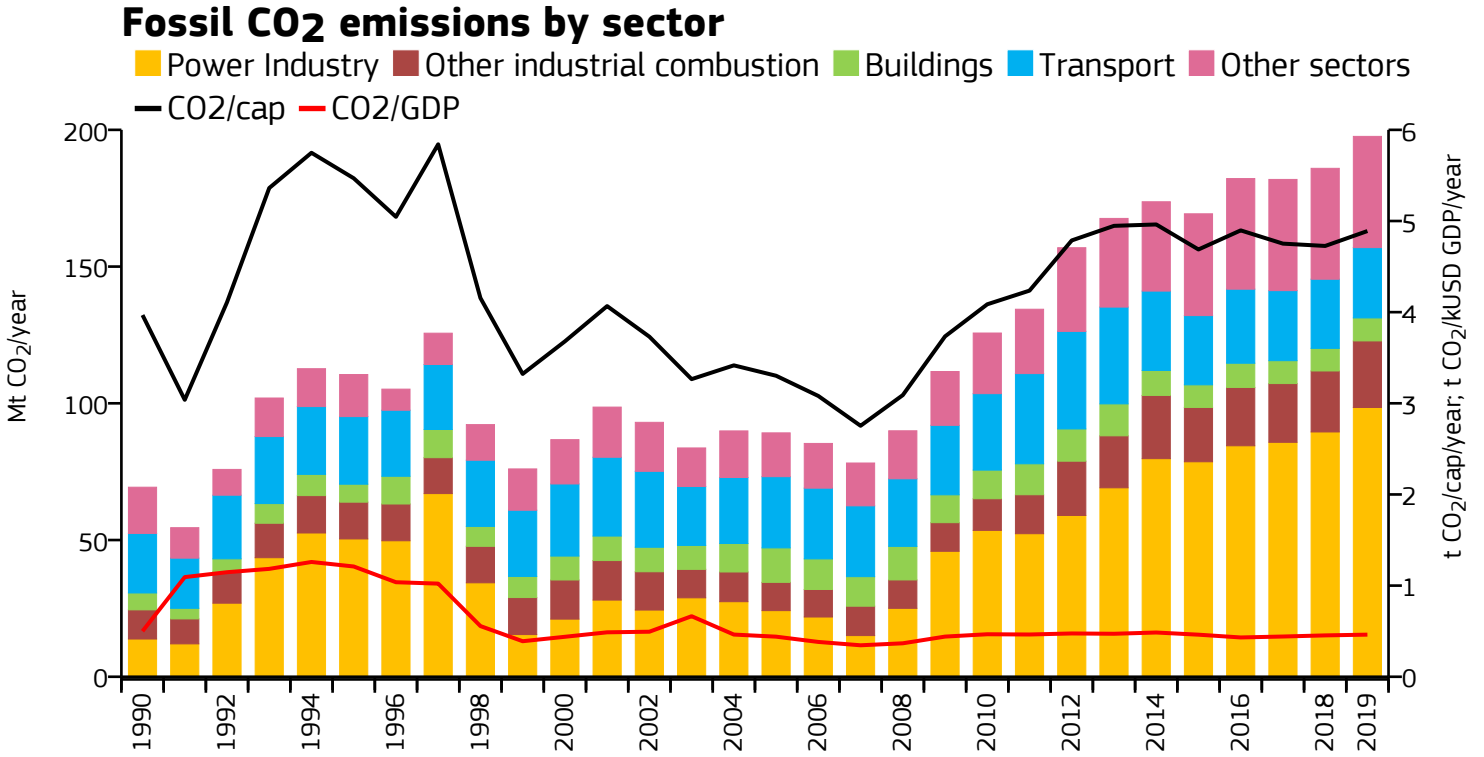


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	701.986	8.476	0.685	82.821M
2018	679.092	8.280	0.612	82.012M
2005	468.879	6.658	0.560	70.422M
1990	204.756	3.642	0.420	56.226M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+389%	+81%	+2%
Other industrial combustion	+233%	+58%	+1%
Buildings	+194%	+25%	+1%
Transport	+254%	+32%	+9%
Other sectors	+162%	+72%	+5%
All sectors	+243%	+50%	+3%

Iraq



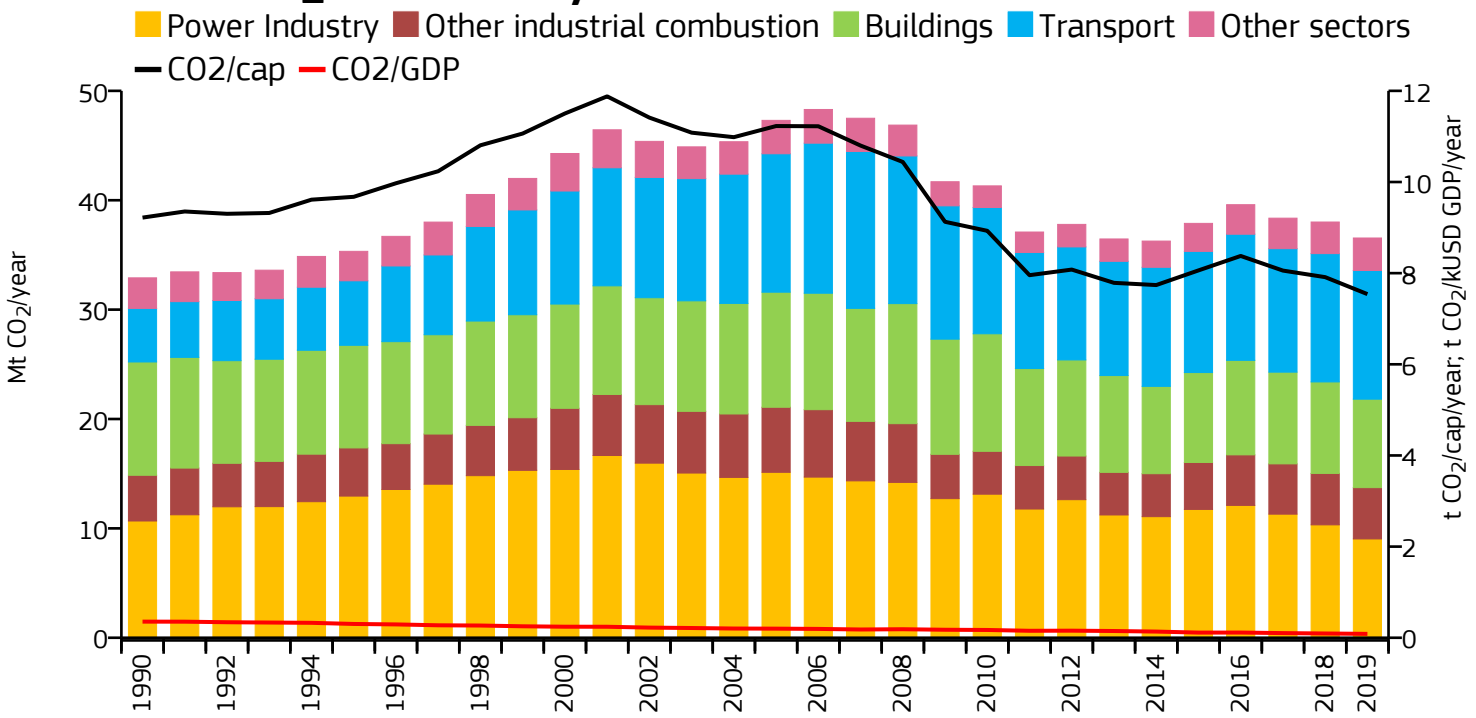
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	197.612	4.890	0.462	40.412M
2018	185.933	4.726	0.454	39.340M
2005	89.191	3.302	0.440	27.008M
1990	69.319	3.968	0.500	17.469M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+614%	+307%	+10%
Other industrial combustion	+128%	+135%	+9%
Buildings	+36%	-33%	+2%
Transport	+18%	-1%	+2%
Other sectors	+141%	+154%	0%
All sectors	+185%	+122%	+6%

Ireland

Fossil CO_2 emissions by sector



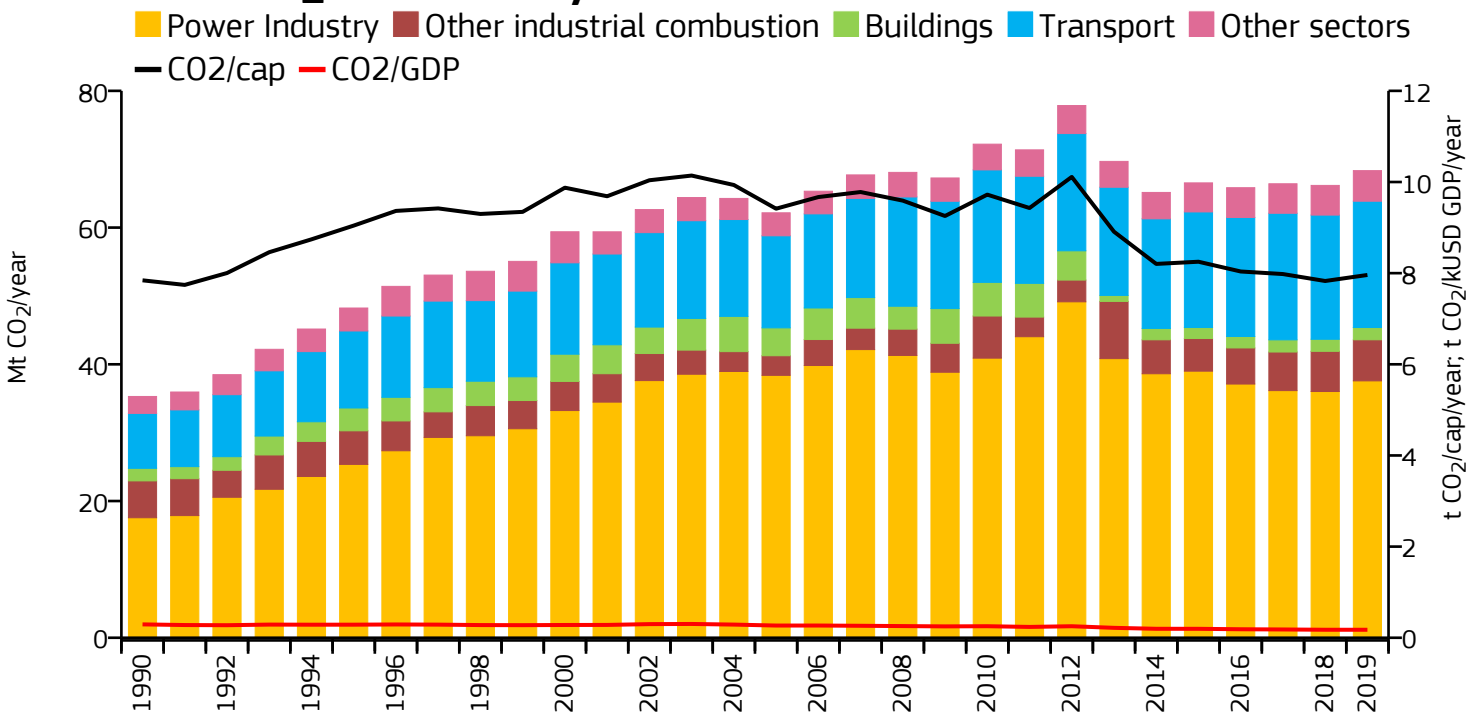
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	36.548	7.540	0.085	4.847M
2018	38.009	7.912	0.094	4.804M
2005	47.303	11.228	0.200	4.213M
1990	32.904	9.219	0.354	3.569M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-15%	-40%	-12%
Other industrial combustion	+12%	-21%	0%
Buildings	-22%	-23%	-3%
Transport	+140%	-7%	0%
Other sectors	+6%	-3%	+3%
All sectors	+11%	-23%	-4%

Israel and Palestine, State of

Fossil CO_2 emissions by sector



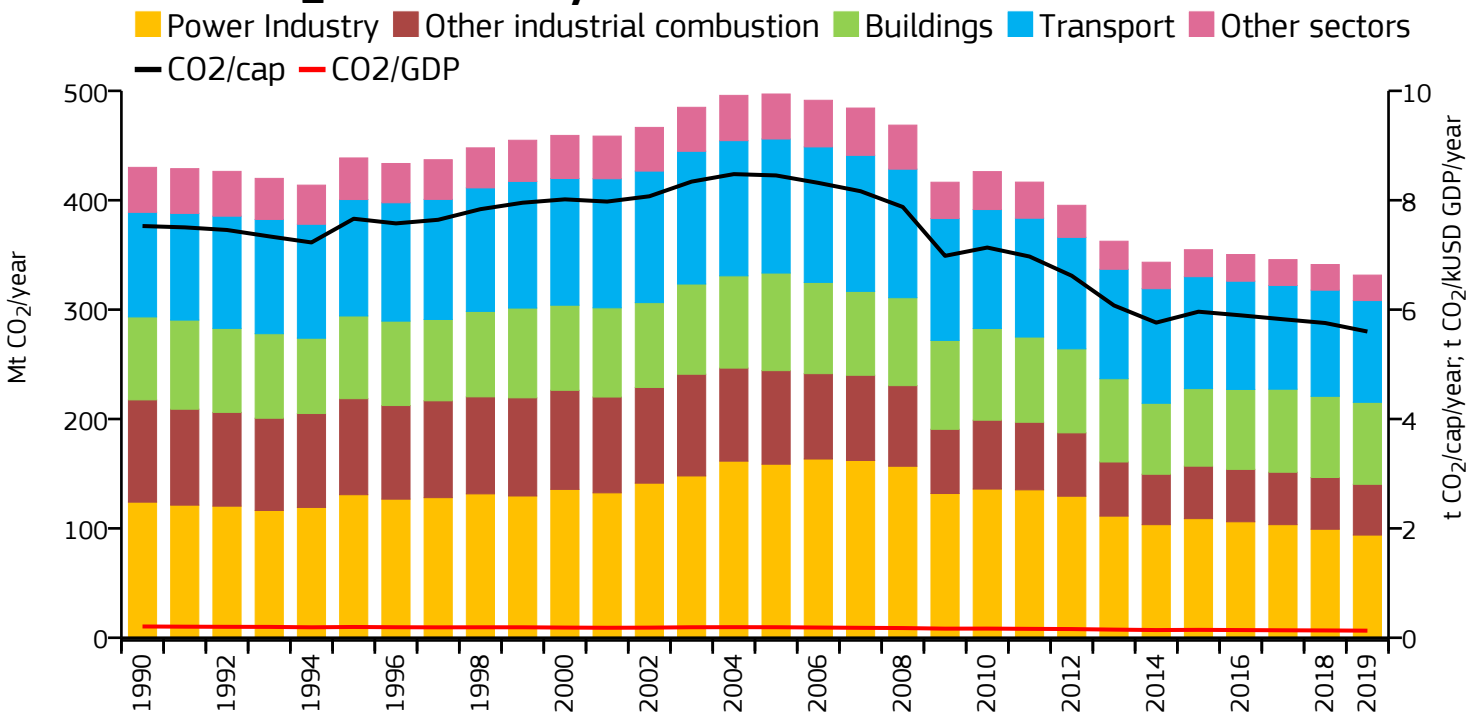
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	68.329	7.960	0.175	8.584M
2018	66.169	7.828	0.175	8.453M
2005	62.162	9.414	0.268	6.603M
1990	35.296	7.843	0.293	4.500M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+114%	-2%	+4%
Other industrial combustion	+11%	+110%	+2%
Buildings	-2%	-56%	+2%
Transport	+130%	+37%	+2%
Other sectors	+80%	+33%	+3%
All sectors	+94%	+10%	+3%

Italy, San Marino and the Holy See

Fossil CO_2 emissions by sector



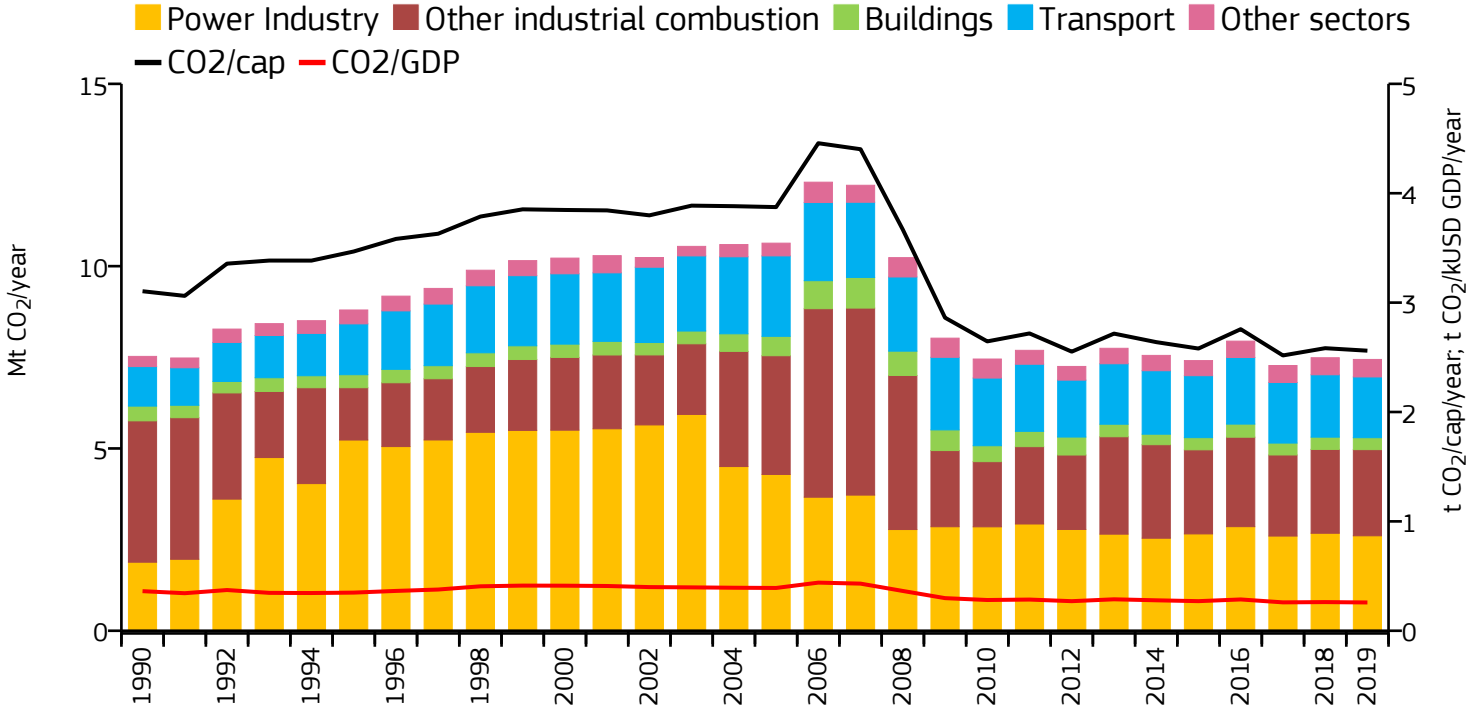
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	331.563	5.599	0.130	59.217M
2018	341.220	5.755	0.134	59.291M
2005	497.127	8.453	0.193	58.809M
1990	430.061	7.528	0.206	57.127M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-24%	-41%	-5%
Other industrial combustion	-50%	-46%	-2%
Buildings	-1%	-16%	+1%
Transport	-3%	-24%	-4%
Other sectors	-43%	-43%	-1%
All sectors	-23%	-33%	-3%

Jamaica

Fossil CO_2 emissions by sector



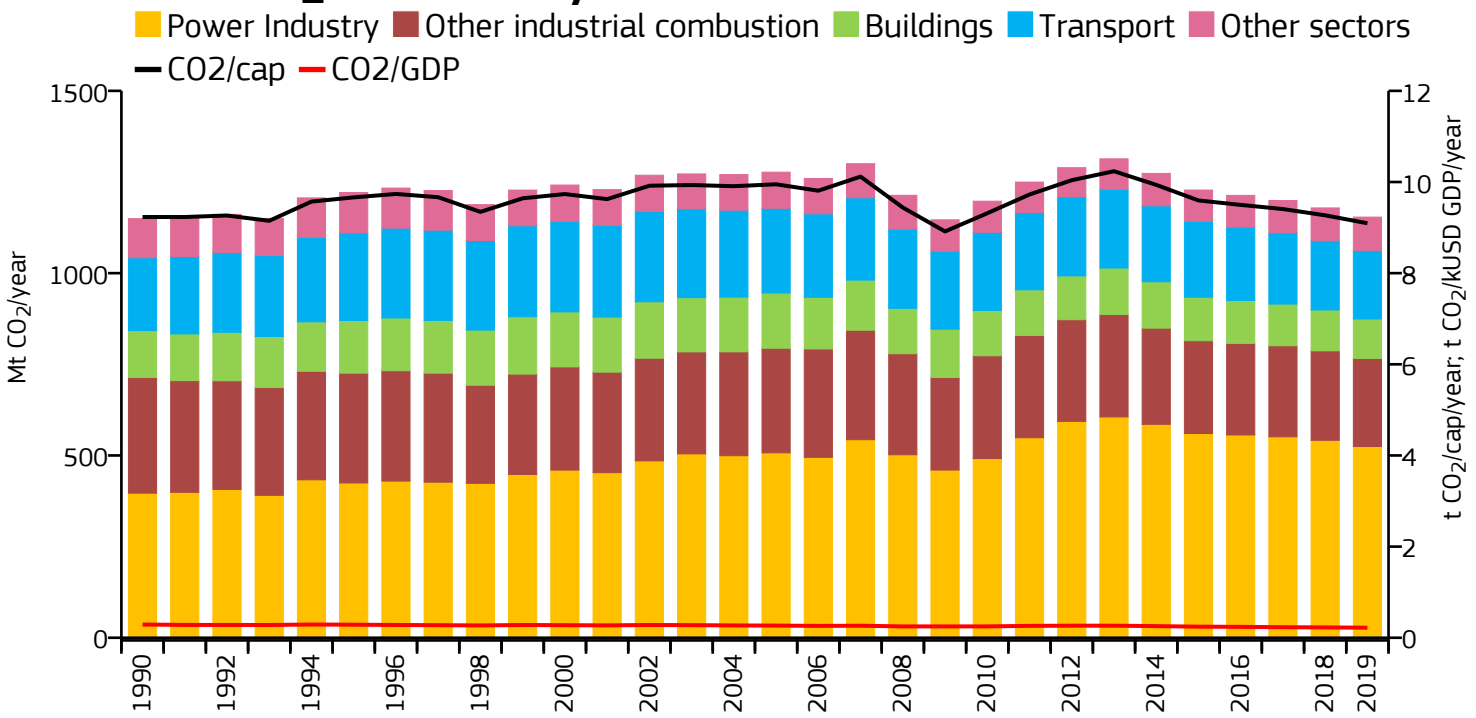
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.441	2.560	0.259	2.906M
2018	7.488	2.583	0.262	2.899M
2005	10.631	3.873	0.391	2.745M
1990	7.525	3.104	0.362	2.424M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+39%	-39%	-3%
Other industrial combustion	-39%	-27%	+3%
Buildings	-19%	-38%	-3%
Transport	+54%	-24%	-3%
Other sectors	+72%	+37%	+3%
All sectors	-1%	-30%	-1%

Japan

Fossil CO_2 emissions by sector



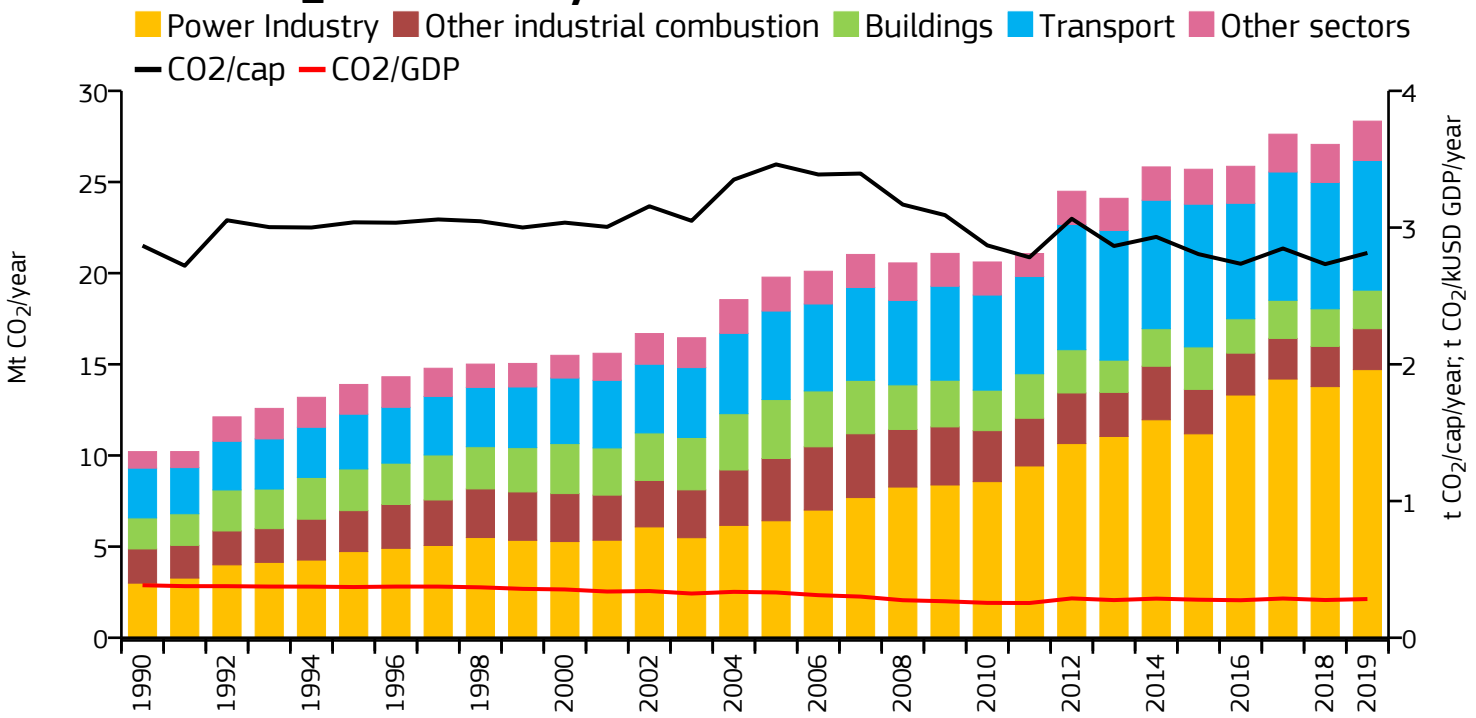
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1153.717	9.095	0.221	126.855M
2018	1178.860	9.269	0.227	127.185M
2005	1276.927	9.950	0.267	128.336M
1990	1149.470	9.232	0.290	124.516M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+32%	+3%	-3%
Other industrial combustion	-24%	-16%	-2%
Buildings	-16%	-29%	-3%
Transport	-6%	-19%	-1%
Other sectors	-14%	-7%	+2%
All sectors	0%	-10%	-2%

Jordan

Fossil CO_2 emissions by sector



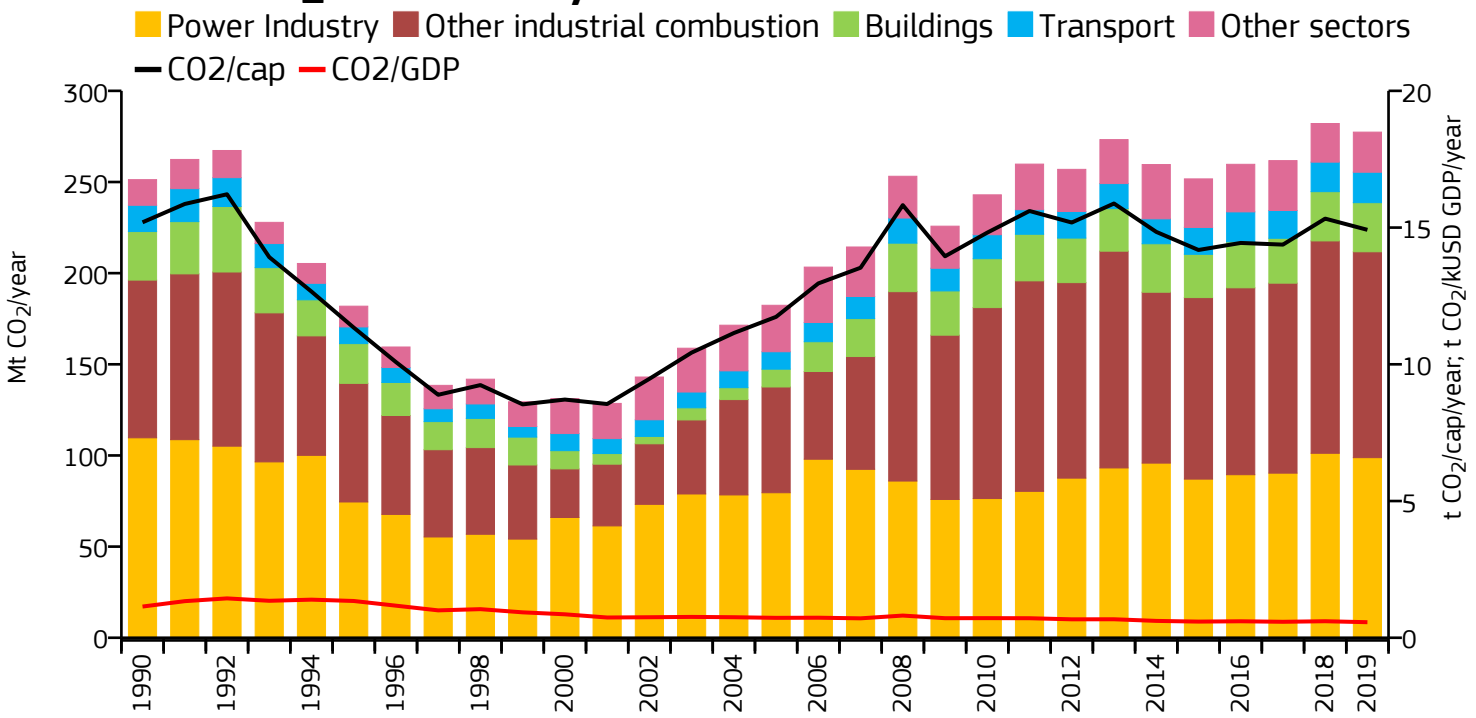
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	28.340	2.814	0.283	10.070M
2018	27.063	2.733	0.276	9.904M
2005	19.782	3.462	0.331	5.714M
1990	10.210	2.868	0.384	3.561M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+391%	+129%	+7%
Other industrial combustion	+20%	-34%	+2%
Buildings	+24%	-35%	+3%
Transport	+161%	+46%	+3%
Other sectors	+139%	+16%	+3%
All sectors	+178%	+43%	+5%

Kazakhstan

Fossil CO_2 emissions by sector

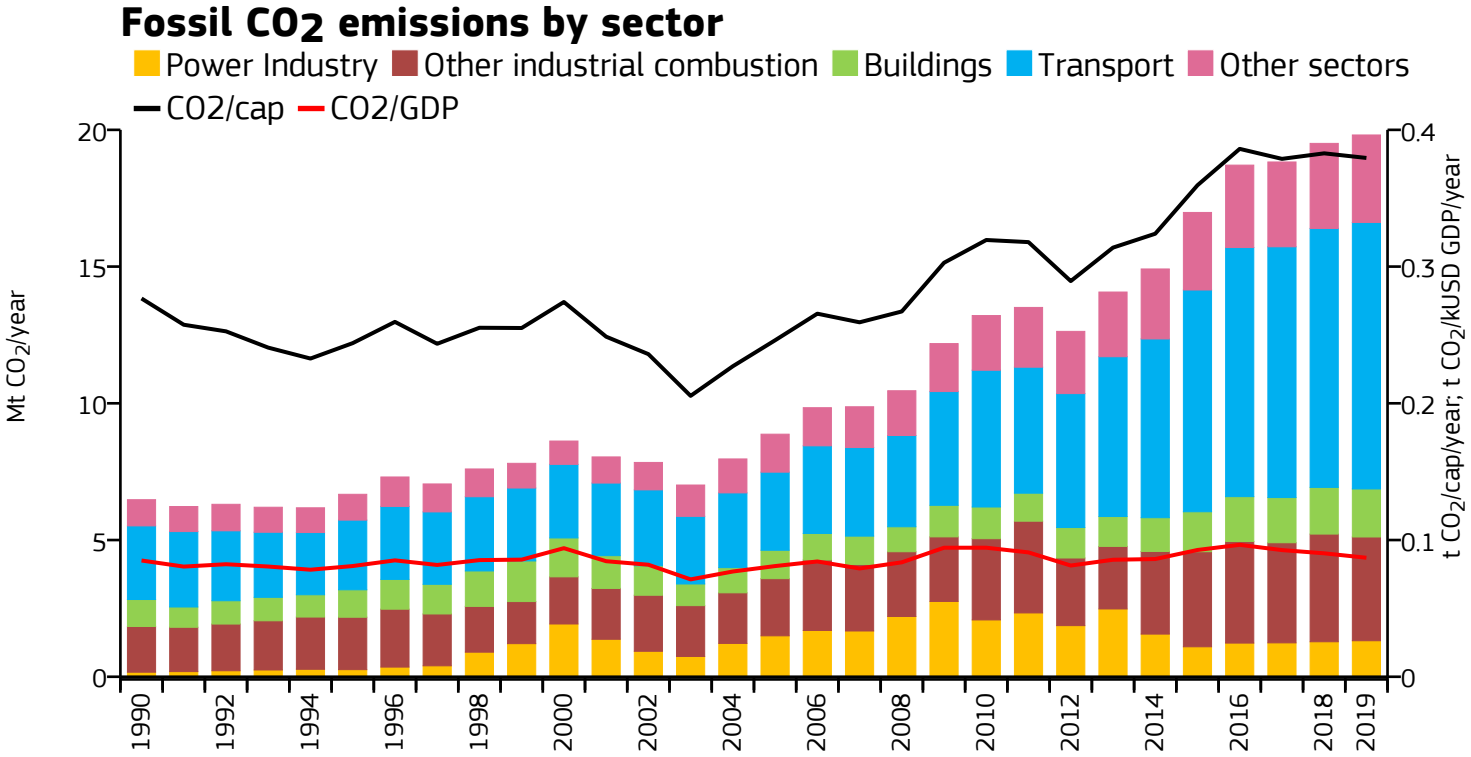


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	277.365	14.918	0.569	18.593M
2018	282.086	15.328	0.604	18.404M
2005	182.379	11.735	0.728	15.541M
1990	251.290	15.193	1.141	16.540M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-10%	+24%	-2%
Other industrial combustion	+31%	+95%	-3%
Buildings	+1%	+176%	0%
Transport	+16%	+75%	+3%
Other sectors	+57%	-14%	+4%
All sectors	+10%	+52%	-2%

Kenya



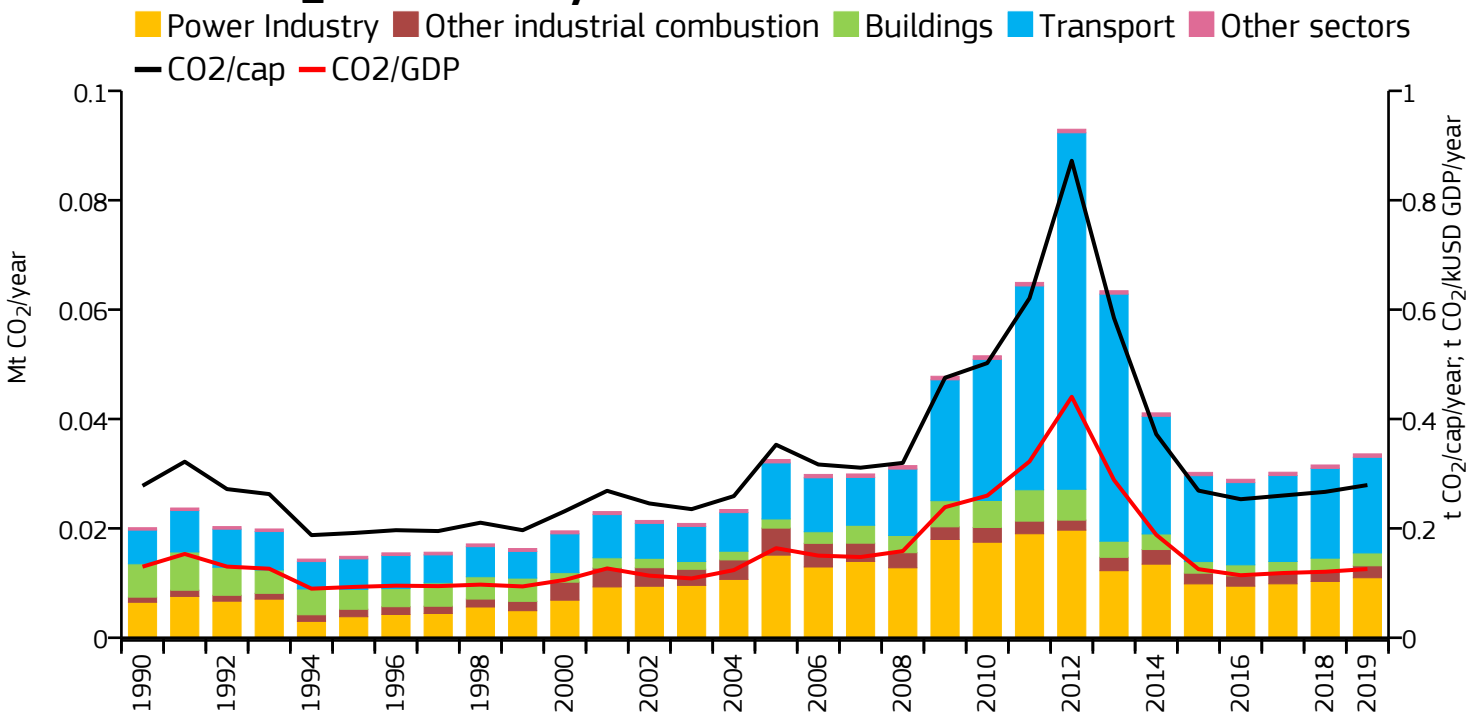
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	19.813	0.379	0.087	52.215M
2018	19.505	0.383	0.090	50.951M
2005	8.871	0.246	0.081	36.048M
1990	6.475	0.277	0.085	23.402M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+693%	-12%	+3%
Other industrial combustion	+127%	+82%	-4%
Buildings	+78%	+69%	+3%
Transport	+262%	+241%	+3%
Other sectors	+234%	+130%	+3%
All sectors	+206%	+123%	+2%

Kiribati

Fossil CO_2 emissions by sector

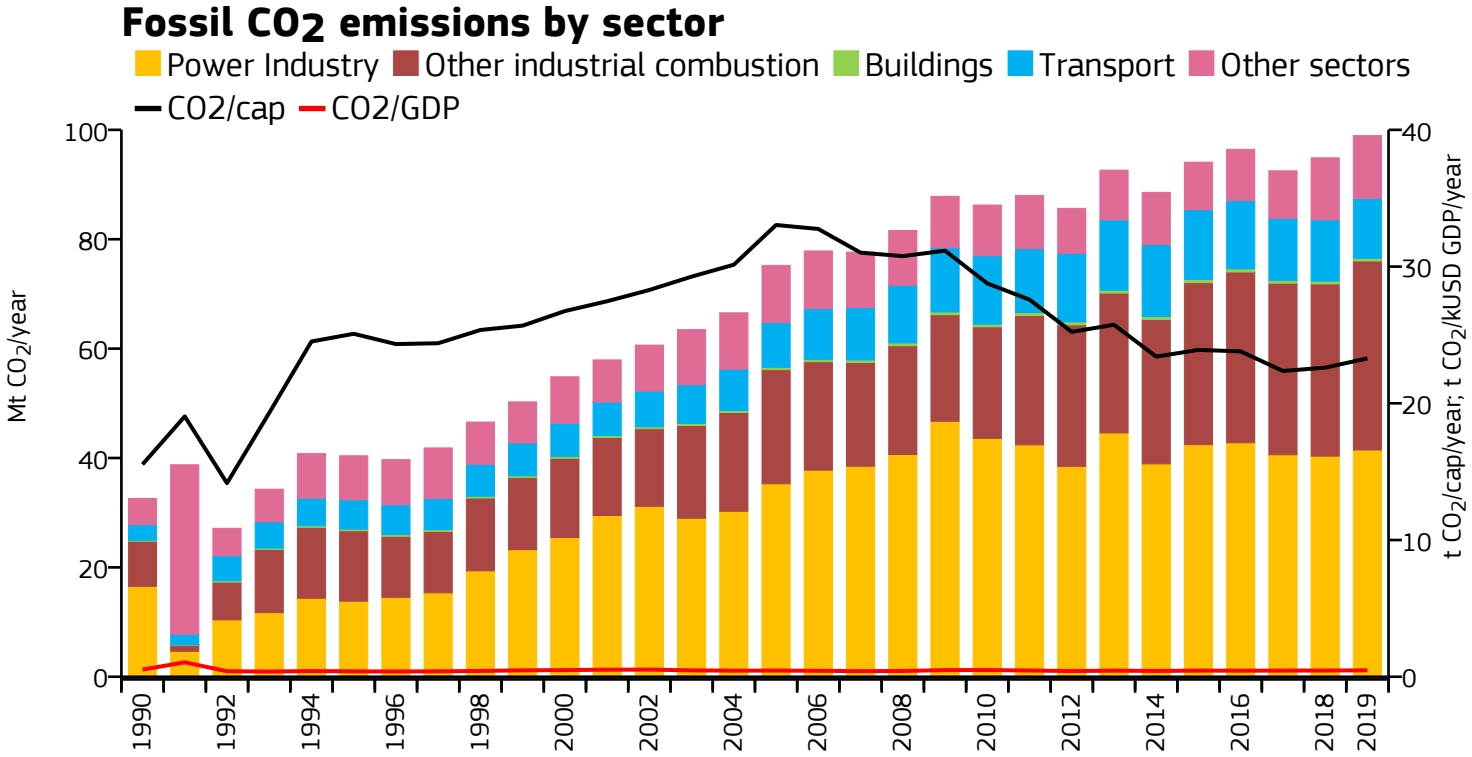


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.034	0.279	0.126	120.428k
2018	0.032	0.267	0.121	118.414k
2005	0.033	0.353	0.164	92.325k
1990	0.020	0.278	0.130	72.412k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+69%	-27%	+7%
Other industrial combustion	+133%	-56%	+7%
Buildings	-61%	+41%	+7%
Transport	+184%	+71%	+7%
Other sectors	+43%	+2%	+1%
All sectors	+67%	+3%	+6%

Kuwait



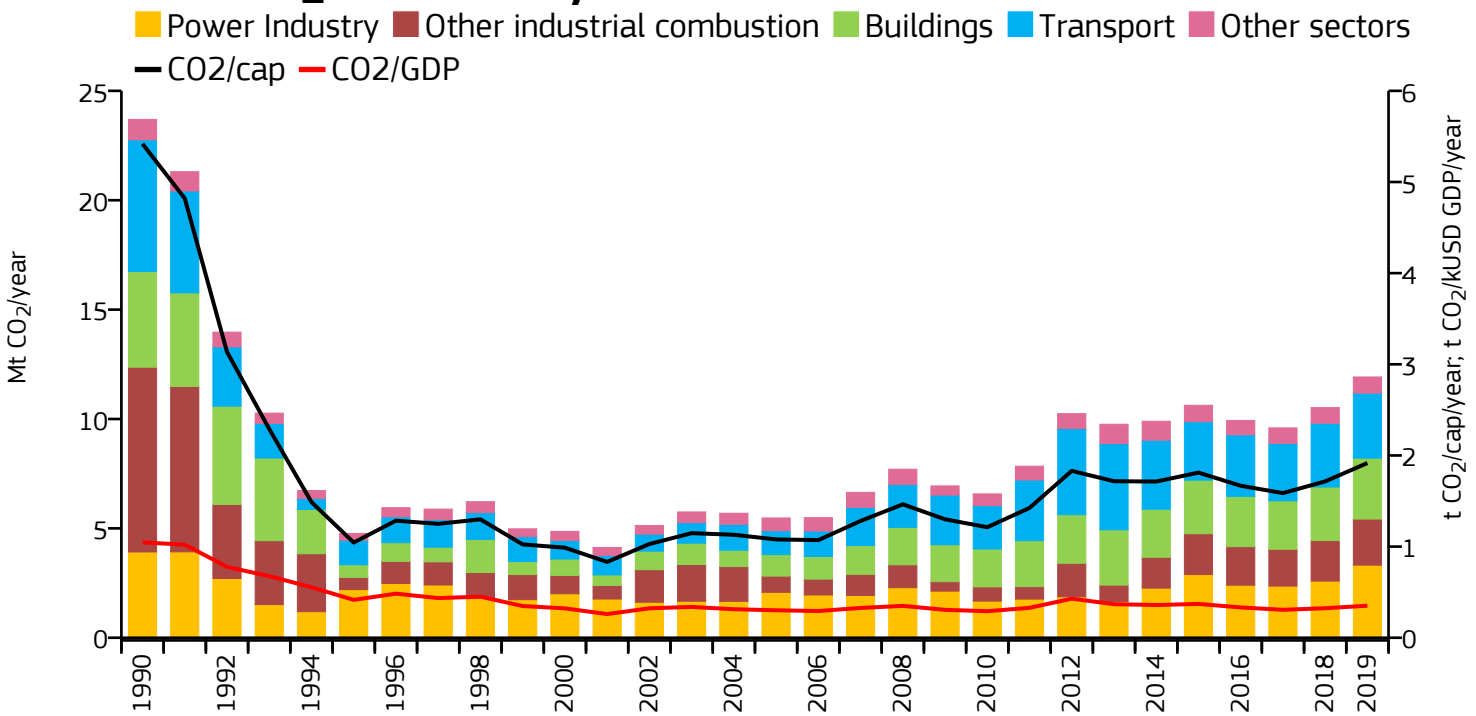
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	98.953	23.289	0.472	4.249M
2018	94.886	22.607	0.454	4.197M
2005	75.223	33.042	0.453	2.277M
1990	32.609	15.531	0.524	2.100M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+151%	+18%	+3%
Other industrial combustion	+319%	+66%	+10%
Buildings	+209%	+17%	-2%
Transport	+284%	+34%	-2%
Other sectors	+139%	+10%	+1%
All sectors	+203%	+32%	+4%

Kyrgyzstan

Fossil CO_2 emissions by sector



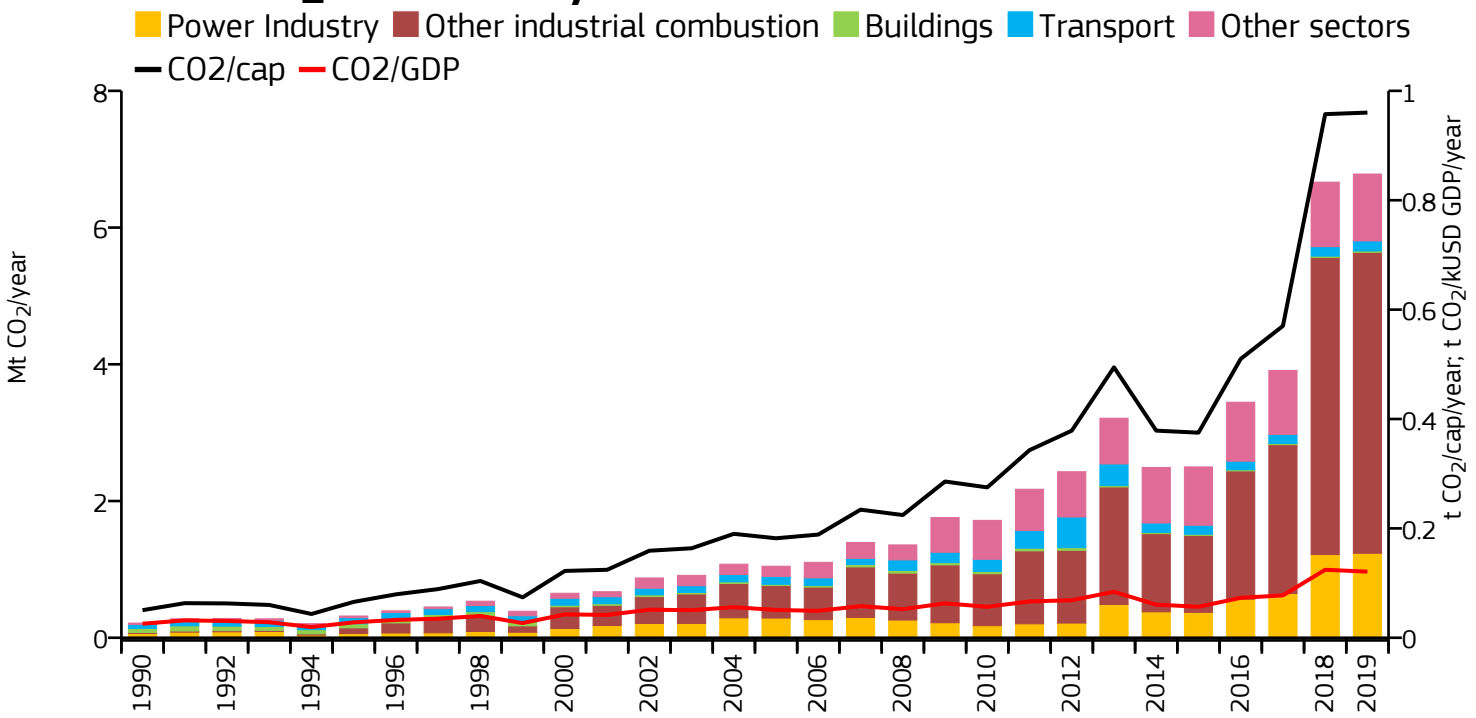
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	11.921	1.917	0.351	6.219M
2018	10.521	1.715	0.324	6.133M
2005	5.475	1.079	0.301	5.075M
1990	23.696	5.419	1.046	4.373M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-15%	+60%	+28%
Other industrial combustion	-75%	+184%	+14%
Buildings	-36%	+183%	+14%
Transport	-51%	+173%	+2%
Other sectors	-21%	+27%	+3%
All sectors	-50%	+118%	+13%

Laos

Fossil CO_2 emissions by sector



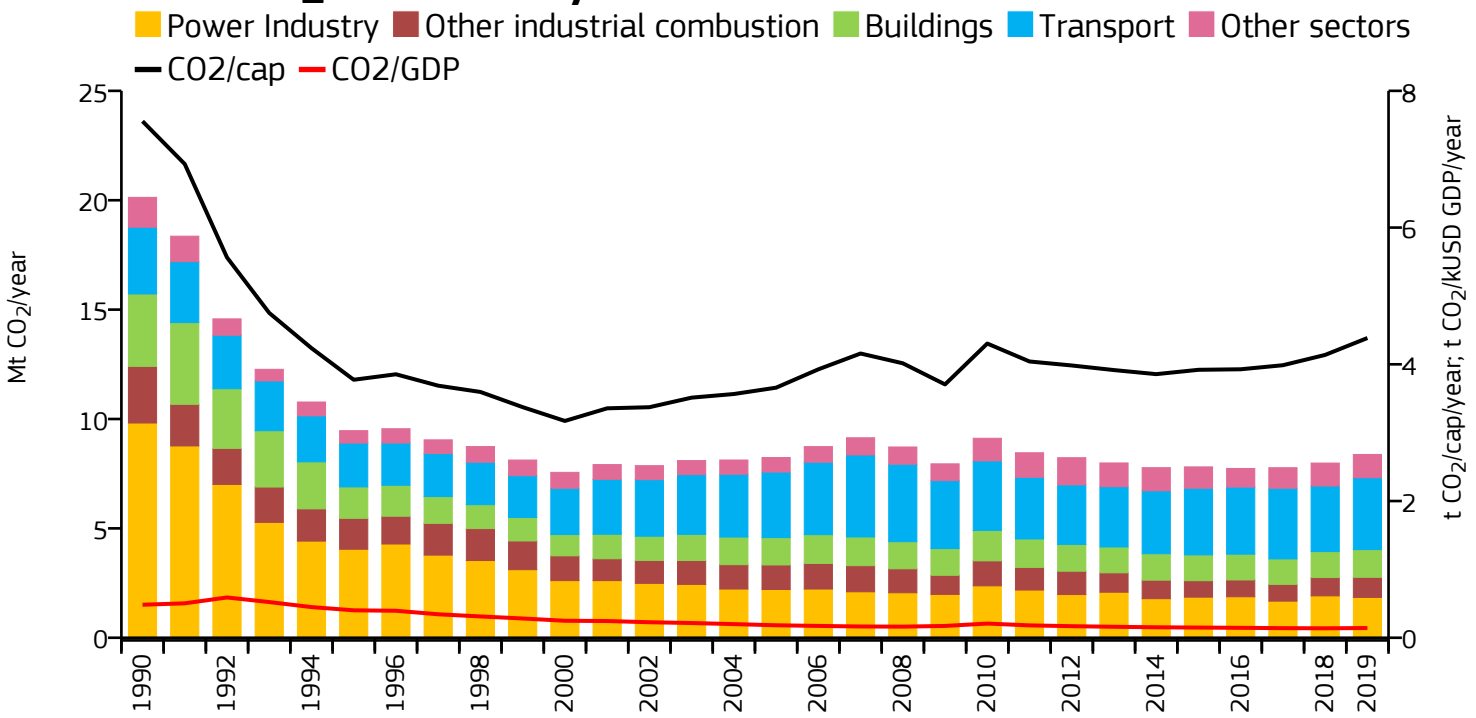
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	6.783	0.960	0.121	7.064M
2018	6.665	0.957	0.124	6.961M
2005	1.047	0.182	0.051	5.754M
1990	0.215	0.050	0.026	4.258M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +1855%	↗ +329%	→ +2%
Other industrial combustion	↗ +33992%	↗ +825%	→ +1%
Buildings	↘ -67%	→ +5%	↗ +7%
Transport	↗ +144%	↗ +28%	↗ +7%
Other sectors	↗ +5006%	↗ +555%	→ +4%
All sectors	↗ +3059%	↗ +548%	→ +2%

Latvia

Fossil CO_2 emissions by sector

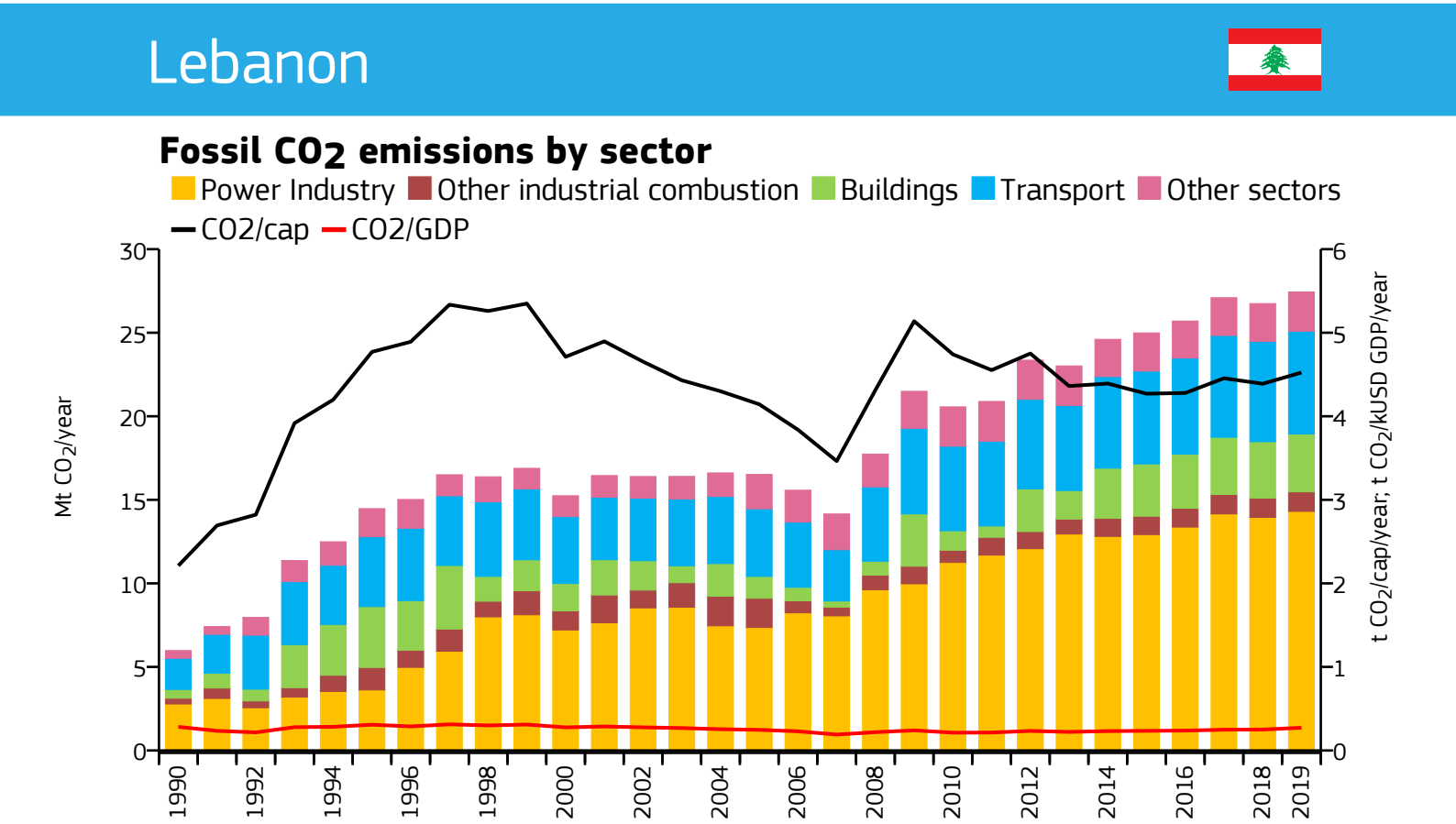


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	8.379	4.385	0.142	1.911M
2018	7.985	4.138	0.138	1.930M
2005	8.238	3.658	0.183	2.252M
1990	20.132	7.556	0.483	2.664M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-81%	-16%	-4%
Other industrial combustion	-65%	-18%	+10%
Buildings	-62%	+1%	+7%
Transport	+8%	+10%	+10%
Other sectors	-22%	+61%	+2%
All sectors	-58%	+2%	+5%

Lebanon

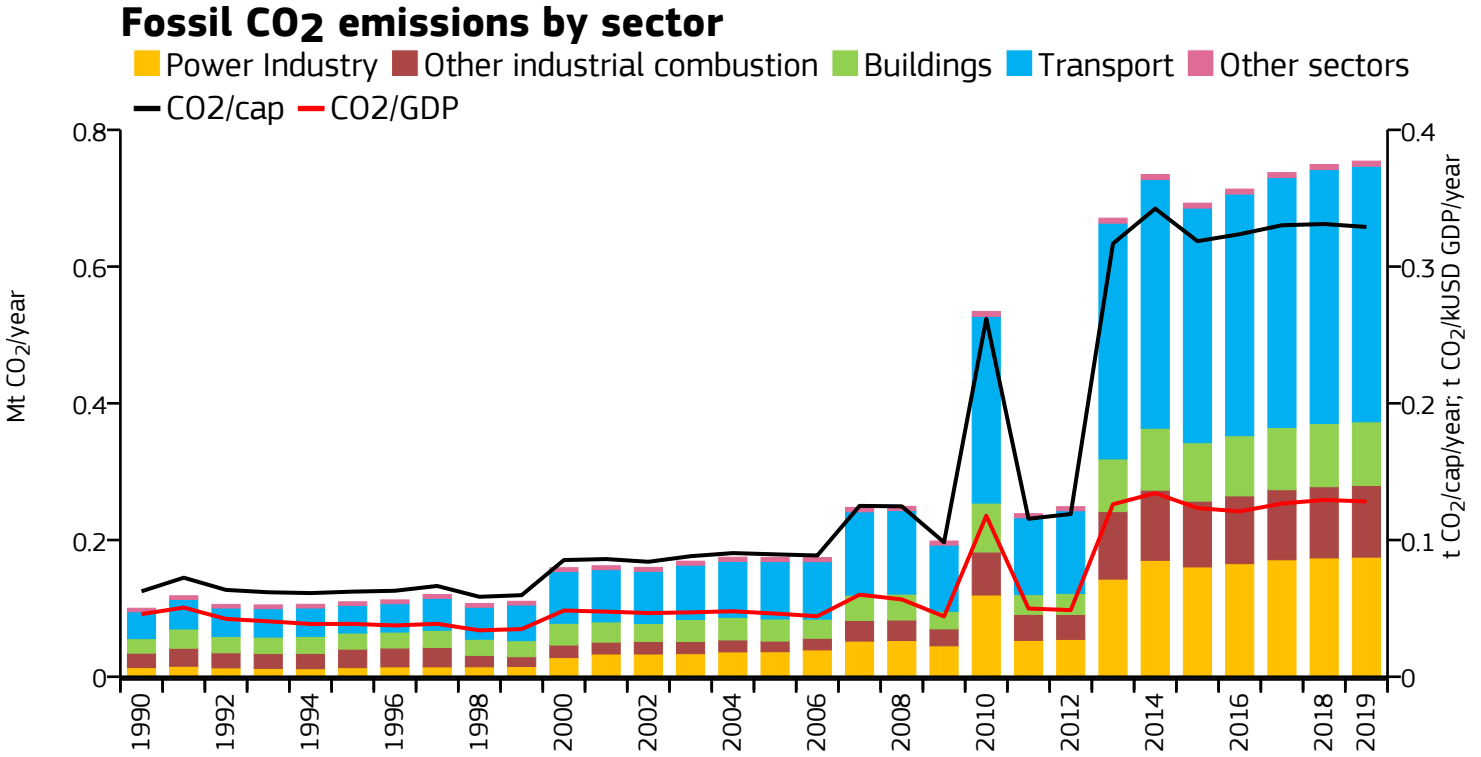


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	27.437	4.523	0.272	6.066M
2018	26.745	4.389	0.250	6.094M
2005	16.520	4.144	0.246	3.987M
1990	5.977	2.211	0.282	2.703M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+414%	+94%	+3%
Other industrial combustion	+242%	-33%	+1%
Buildings	+556%	+164%	+3%
Transport	+230%	+52%	+3%
Other sectors	+406%	+14%	+3%
All sectors	+359%	+66%	+3%

Lesotho

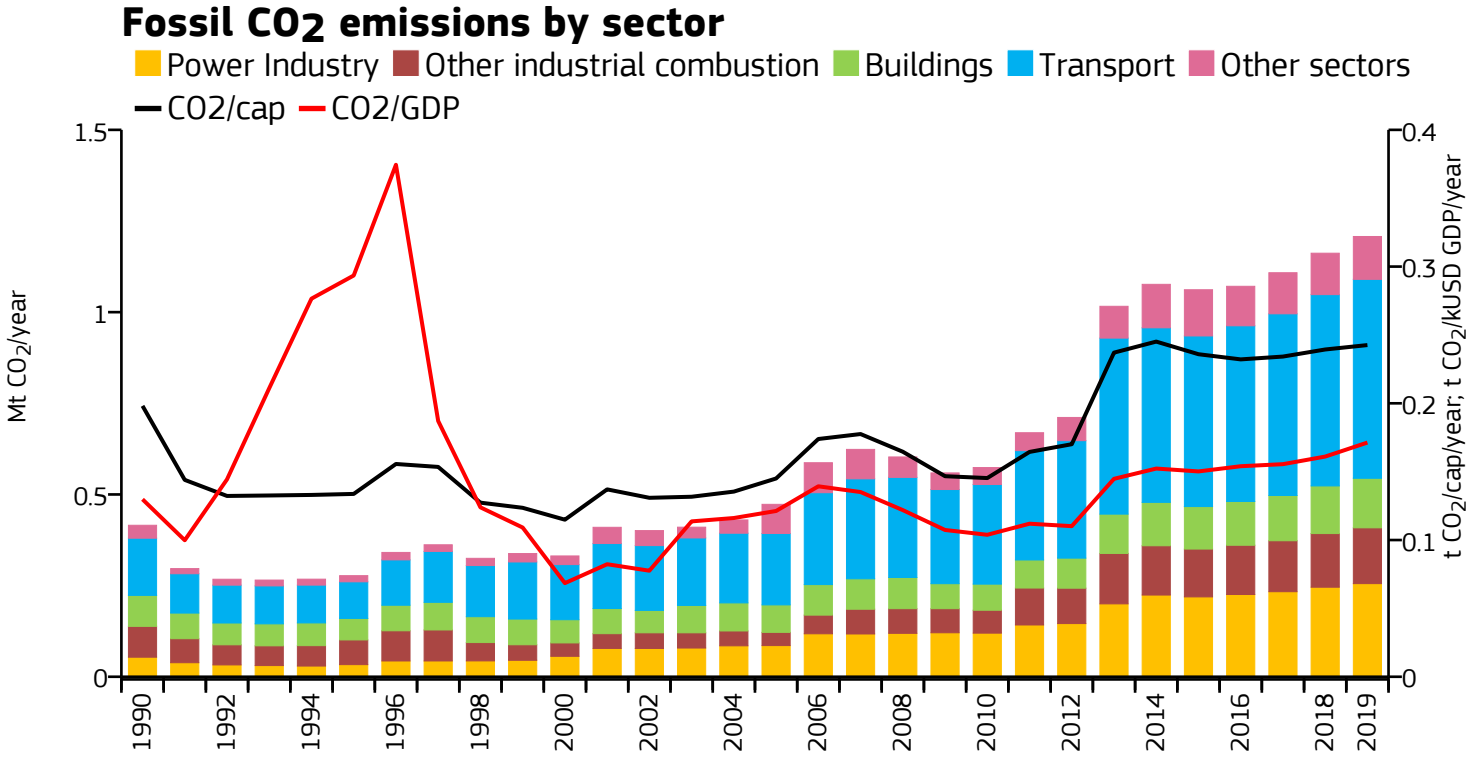


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.754	0.329	0.128	2.293M
2018	0.749	0.331	0.129	2.263M
2005	0.175	0.090	0.046	1.950M
1990	0.100	0.062	0.046	1.604M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1205%	+378%	+1%
Other industrial combustion	+396%	+575%	+1%
Buildings	+339%	+188%	+1%
Transport	+853%	+345%	+1%
Other sectors	+44%	+22%	+1%
All sectors	+652%	+332%	+1%

Liberia



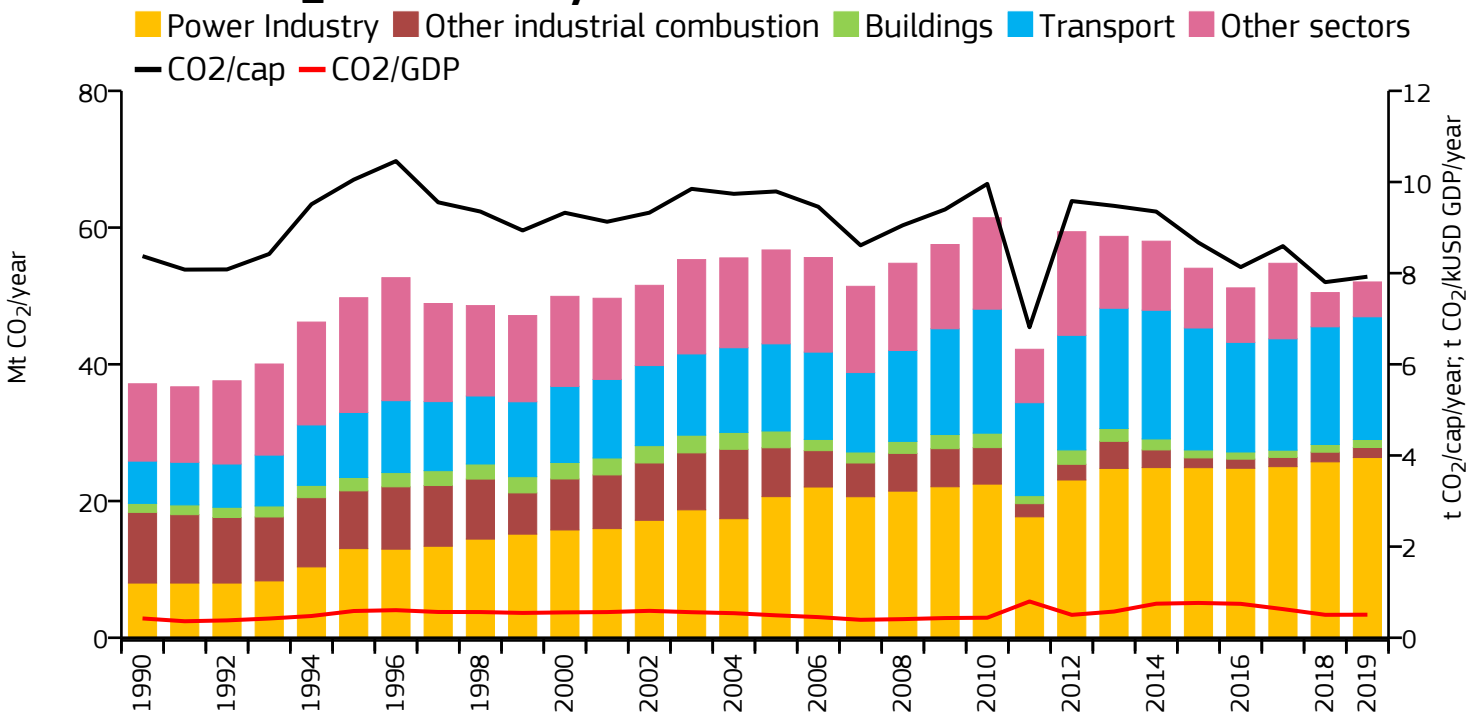
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.208	0.243	0.171	4.978M
2018	1.162	0.239	0.161	4.854M
2005	0.473	0.145	0.121	3.261M
1990	0.416	0.198	0.130	2.097M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+376%	+199%	+4%
Other industrial combustion	+81%	+322%	+4%
Buildings	+60%	+80%	+4%
Transport	+248%	+179%	+4%
Other sectors	+232%	+47%	+3%
All sectors	+191%	+155%	+4%

Libya

Fossil CO_2 emissions by sector

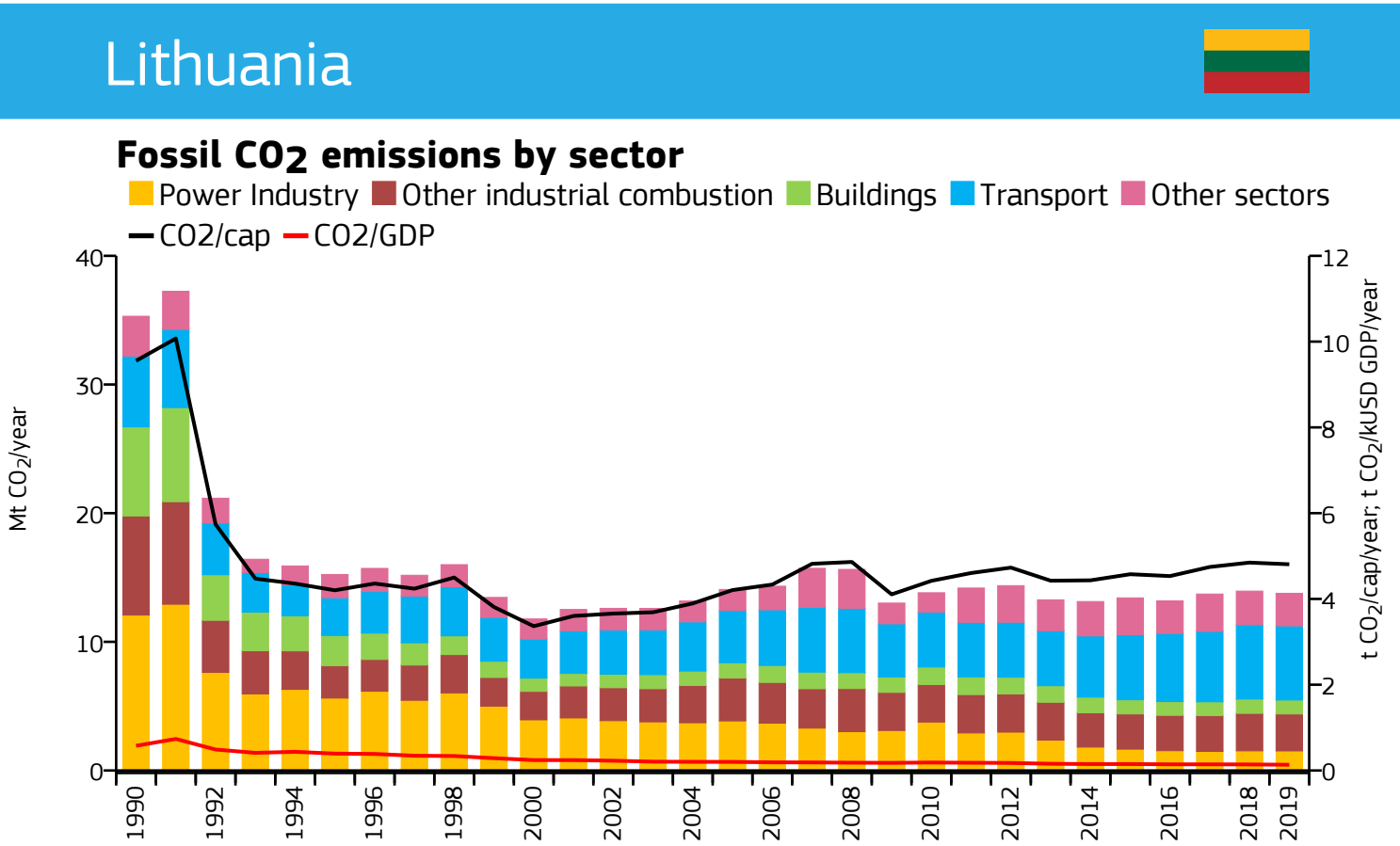


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	52.046	7.922	0.506	6.570M
2018	50.491	7.803	0.503	6.471M
2005	56.727	9.793	0.492	5.793M
1990	37.151	8.374	0.424	4.437M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+229%	+28%	+2%
Other industrial combustion	-86%	-79%	+4%
Buildings	-11%	-52%	+4%
Transport	+190%	+41%	+4%
Other sectors	-55%	-63%	+2%
All sectors	+40%	-8%	+3%

Lithuania

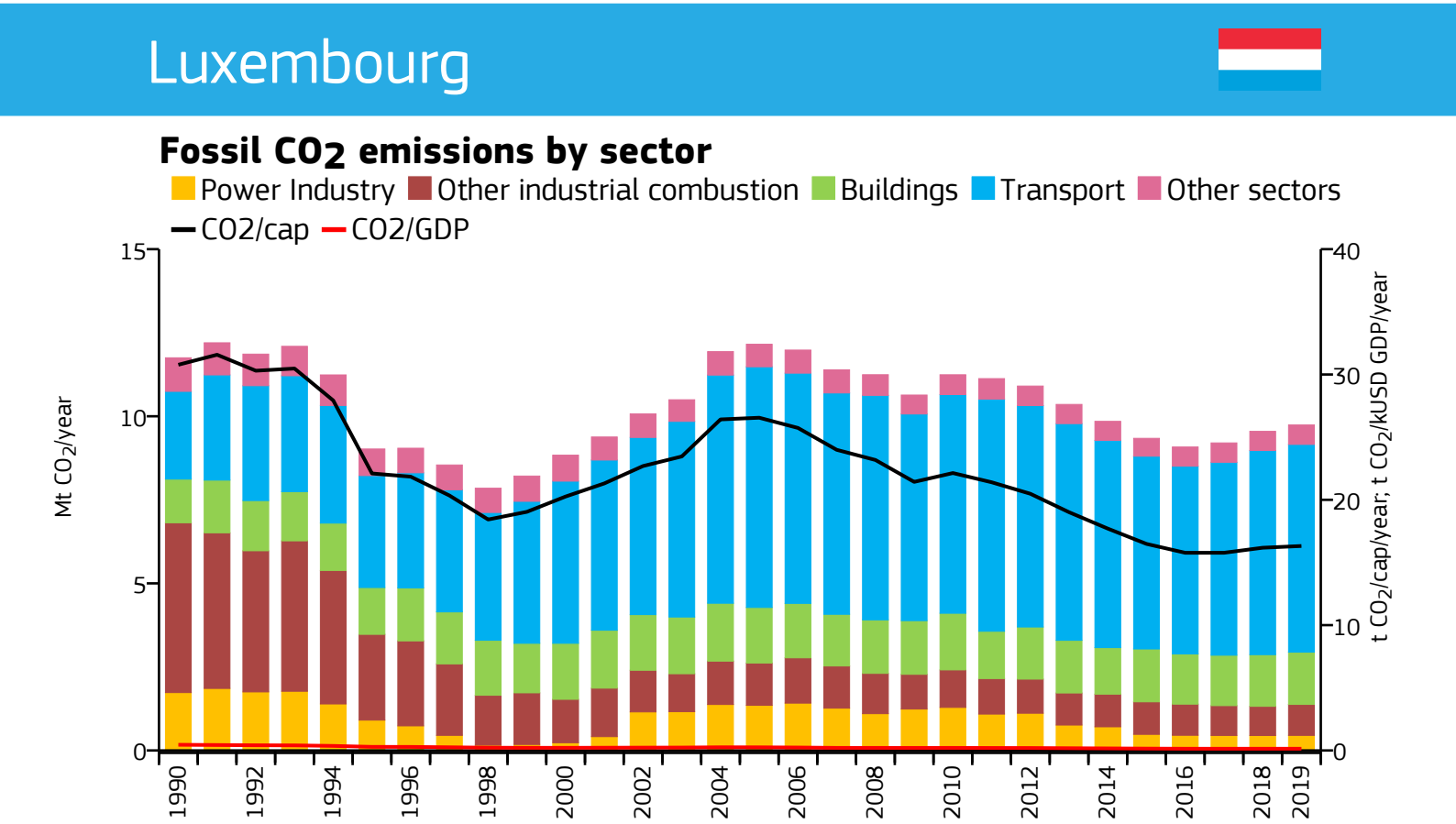


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	13.772	4.808	0.134	2.864M
2018	13.943	4.847	0.141	2.876M
2005	14.068	4.207	0.200	3.344M
1990	35.305	9.552	0.576	3.696M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-87%	-61%	0%
Other industrial combustion	-63%	-14%	-1%
Buildings	-84%	-9%	-3%
Transport	+5%	+42%	0%
Other sectors	-18%	+54%	-3%
All sectors	-61%	-2%	-1%

Luxembourg



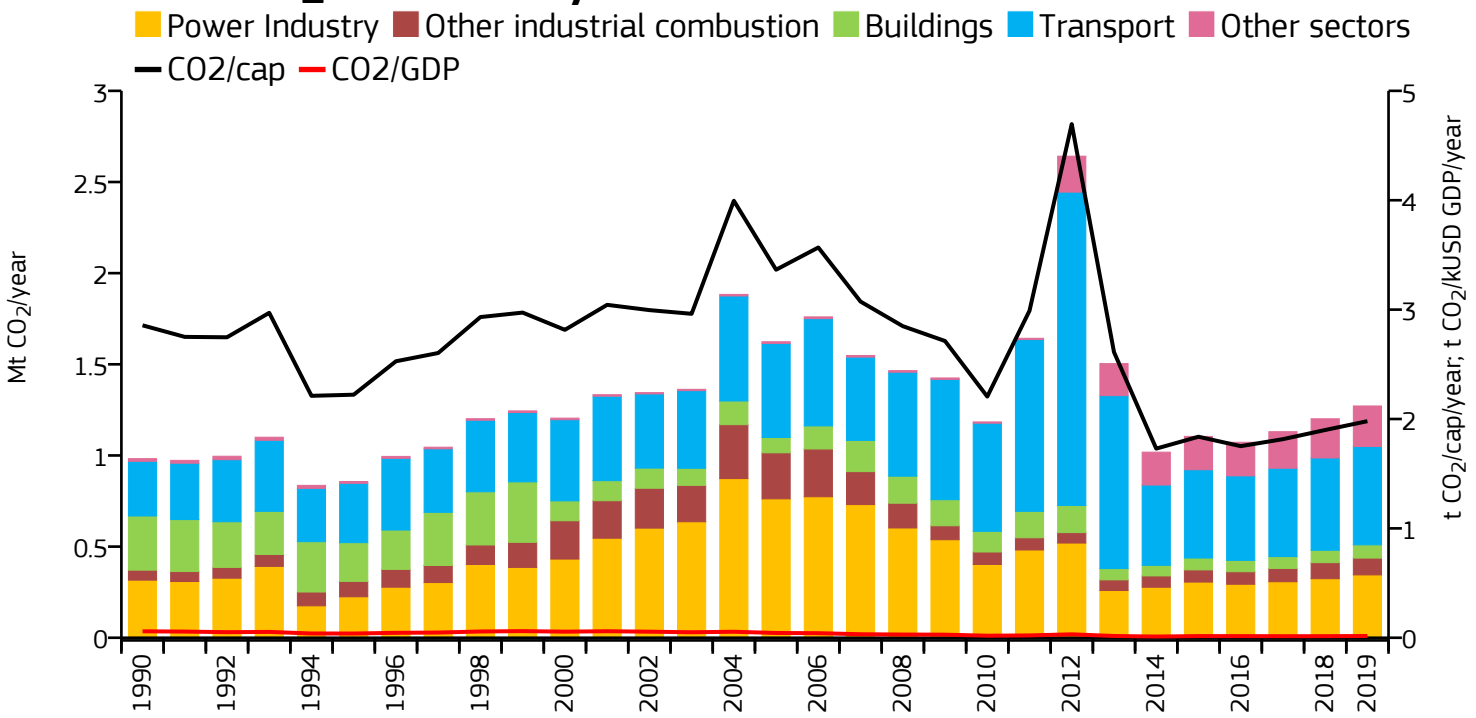
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	9.740	16.315	0.137	596.992k
2018	9.549	16.176	0.138	590.321k
2005	12.156	26.550	0.250	457.842k
1990	11.750	30.777	0.453	381.791k

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-74%	↘	-67%	→	+1%
Other industrial combustion	↘	-82%	↘	-27%	↗	+6%
Buildings	↗	+20%	↘	-6%	→	+1%
Transport	↗	+137%	↘	-14%	→	+2%
Other sectors	↘	-42%	↘	-14%	→	+1%
All sectors	↘	-17%	↘	-20%	→	+2%

Macao

Fossil CO_2 emissions by sector



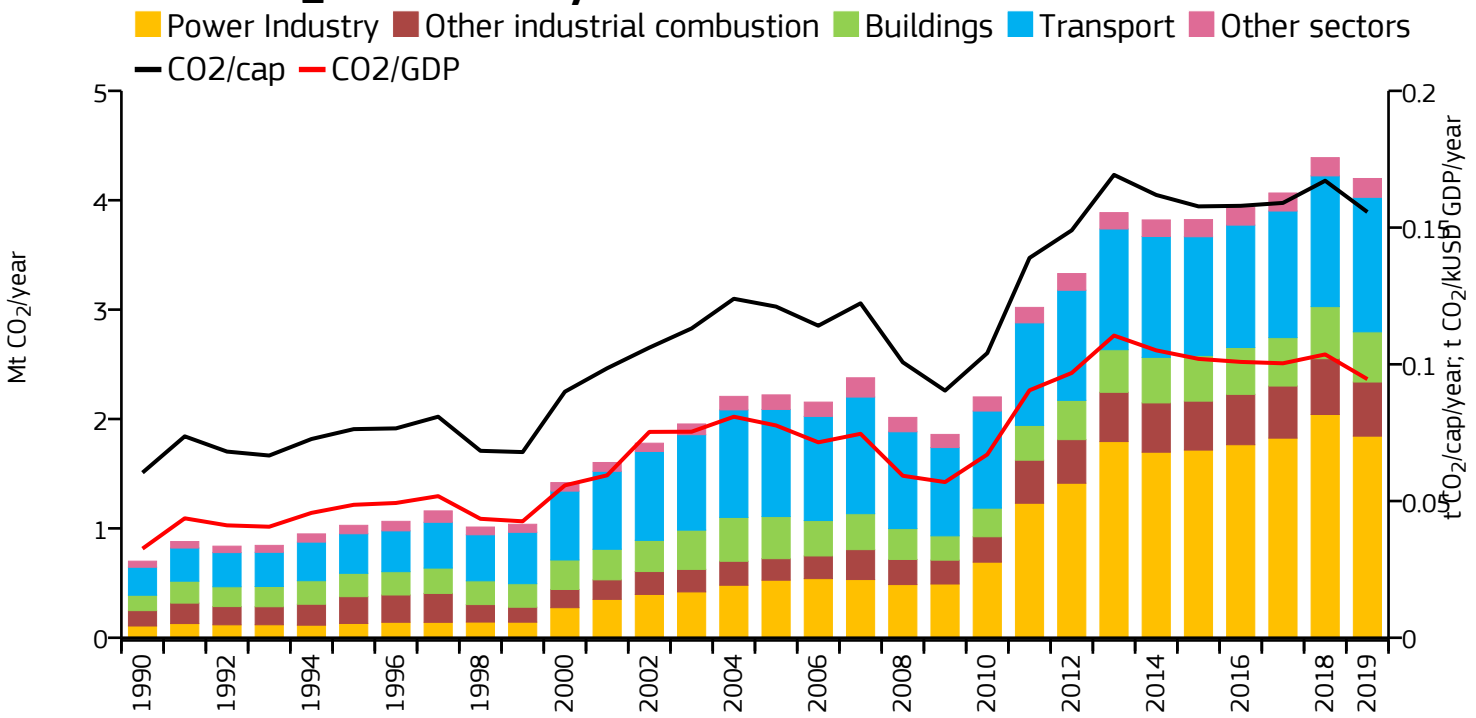
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.271	1.980	0.016	642.090k
2018	1.201	1.899	0.014	632.418k
2005	1.624	3.365	0.044	482.559k
1990	0.982	2.856	0.059	343.935k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+9%	-55%	+6%
Other industrial combustion	+69%	-63%	+5%
Buildings	-76%	-14%	+7%
Transport	+80%	+4%	+7%
Other sectors	+1442%	+2389%	+3%
All sectors	+29%	-22%	+6%

Madagascar

Fossil CO_2 emissions by sector

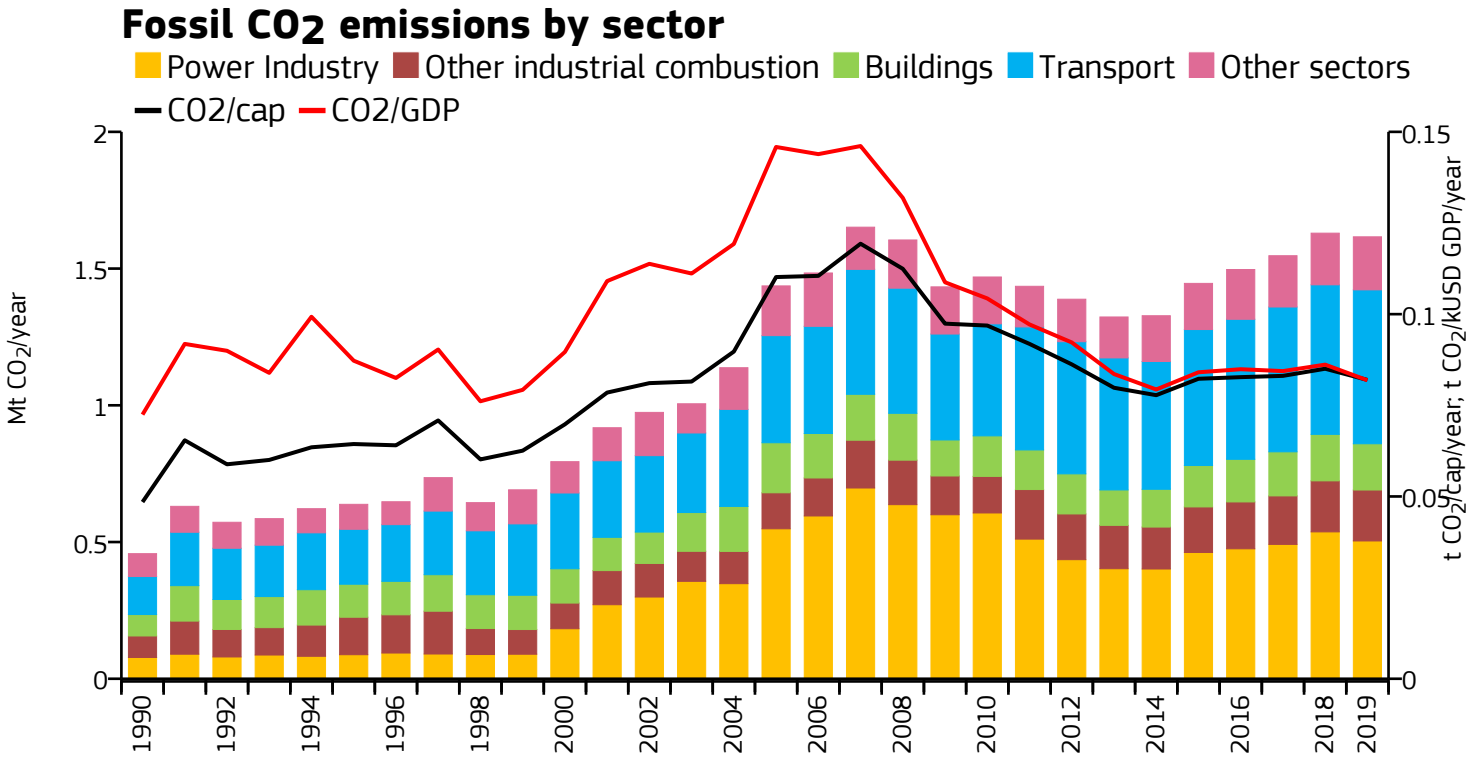


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	4.199	0.156	0.095	26.970M
2018	4.389	0.167	0.104	26.263M
2005	2.220	0.121	0.078	18.337M
1990	0.700	0.060	0.033	11.599M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +1616%	↗ +250%	↘ -10%
Other industrial combustion	↗ +252%	↗ +152%	→ -3%
Buildings	↗ +226%	↗ +19%	→ -4%
Transport	↗ +380%	↗ +26%	→ +3%
Other sectors	↗ +209%	↗ +29%	→ +3%
All sectors	↗ +500%	↗ +89%	→ -4%

Malawi



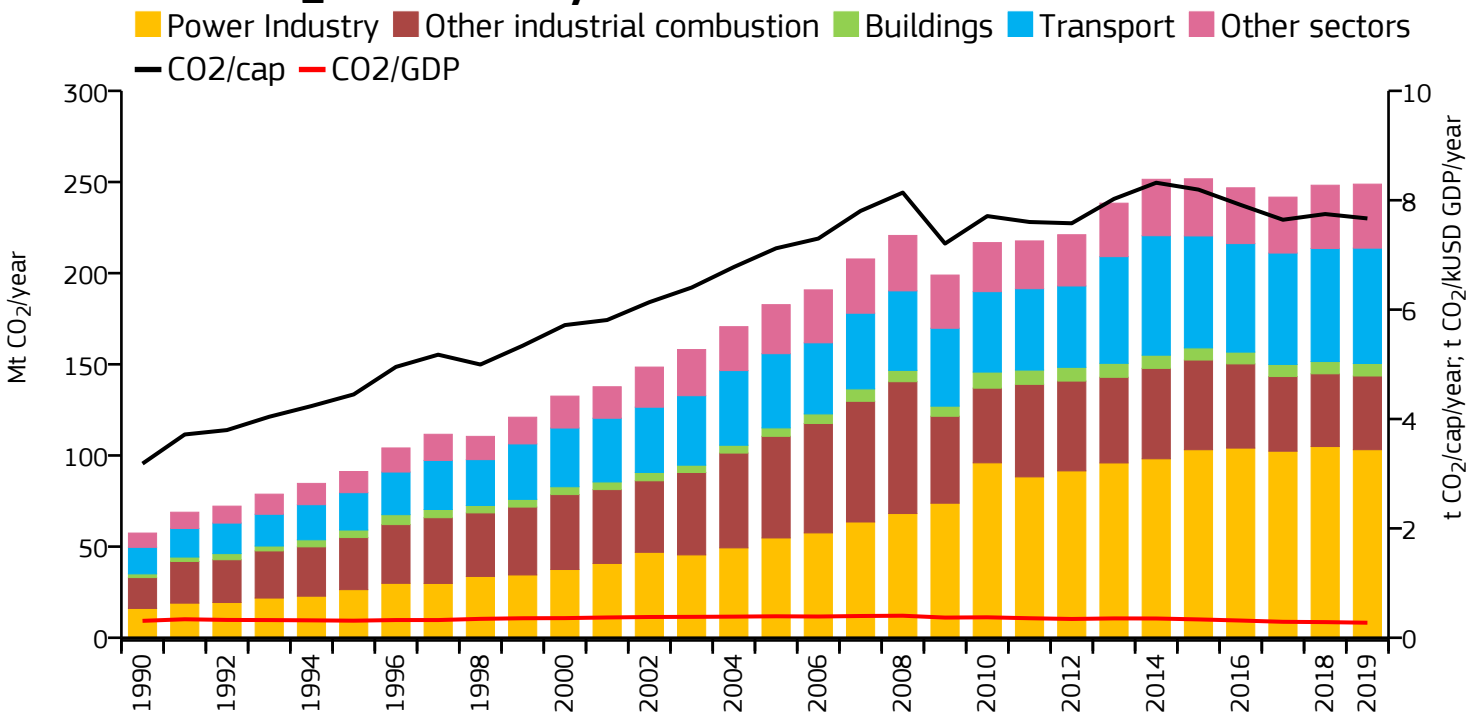
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.616	0.082	0.082	19.719M
2018	1.630	0.085	0.086	19.165M
2005	1.437	0.110	0.146	13.040M
1990	0.457	0.048	0.072	9.438M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+547%	-8%	-6%
Other industrial combustion	+137%	+41%	0%
Buildings	+116%	-8%	-1%
Transport	+305%	+44%	+3%
Other sectors	+132%	+7%	+3%
All sectors	+253%	+12%	-1%

Malaysia

Fossil CO_2 emissions by sector



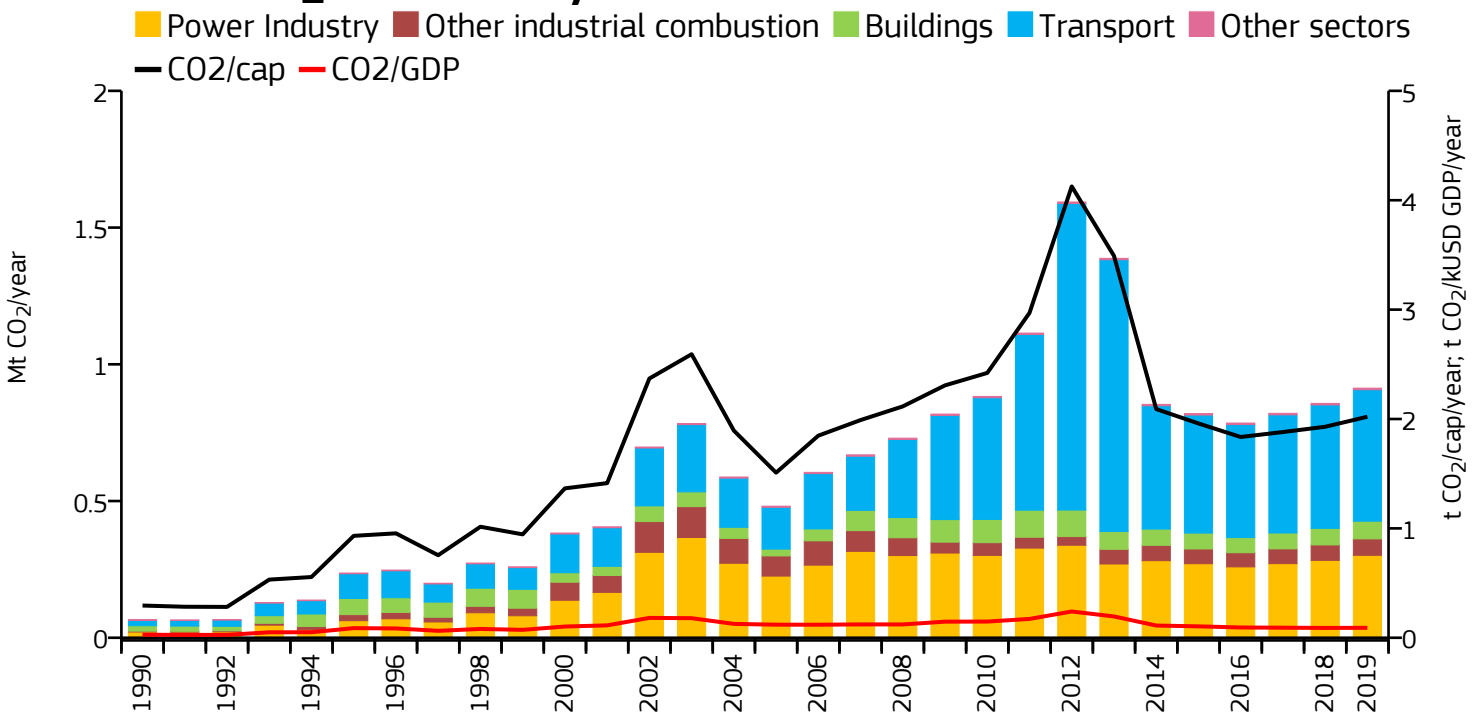
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	248.833	7.667	0.275	32.454M
2018	248.246	7.747	0.286	32.042M
2005	182.720	7.121	0.393	25.659M
1990	57.428	3.184	0.309	18.038M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+541%	+88%	-2%
Other industrial combustion	+139%	-27%	+1%
Buildings	+235%	+49%	+2%
Transport	+335%	+56%	+2%
Other sectors	+348%	+30%	+1%
All sectors	+333%	+36%	0%

Maldives

Fossil CO_2 emissions by sector



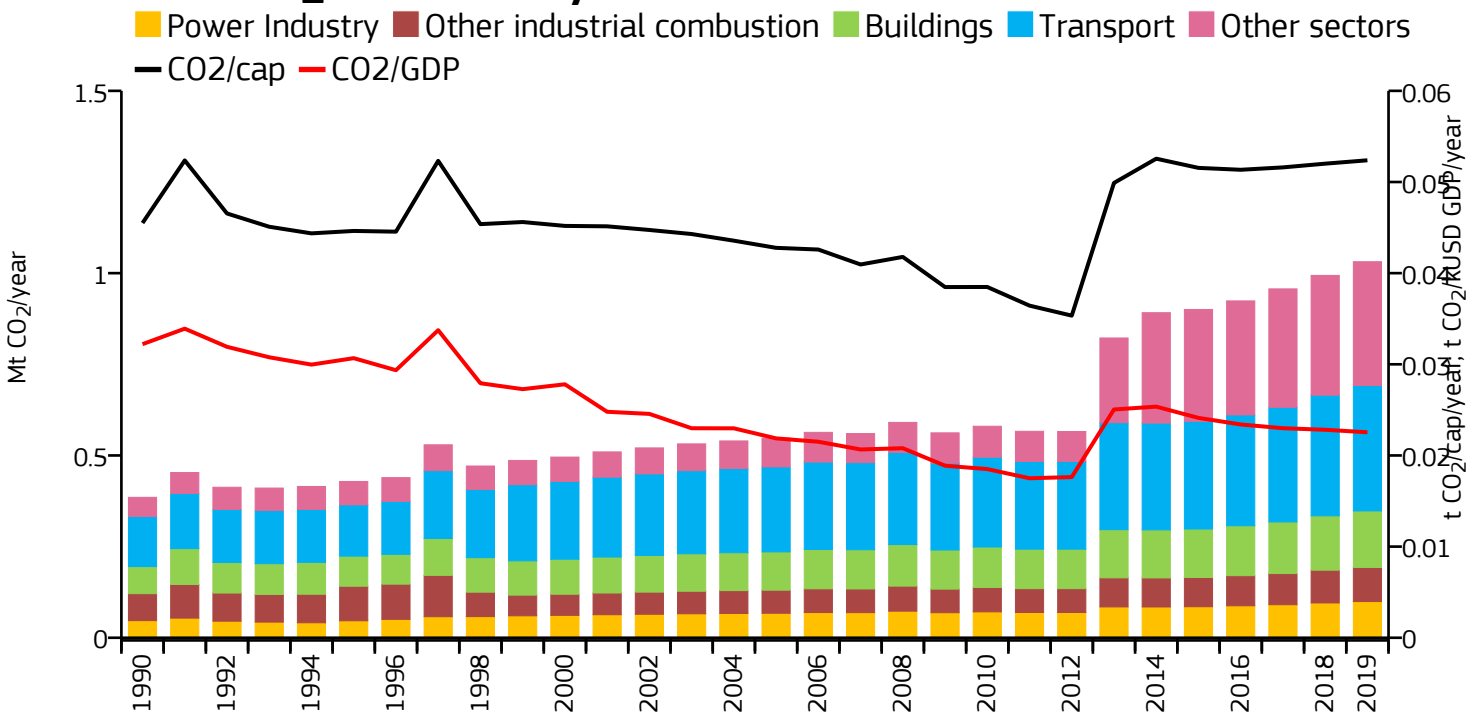
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.913	2.021	0.091	451.738k
2018	0.857	1.929	0.090	444.259k
2005	0.481	1.509	0.119	318.836k
1990	0.066	0.294	0.028	223.215k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1331%	+34%	+7%
Other industrial combustion	+1868%	-19%	+7%
Buildings	+227%	+160%	+7%
Transport	+2303%	+214%	+7%
Other sectors	+227%	+44%	+3%
All sectors	+1289%	+90%	+7%

Mali

Fossil CO_2 emissions by sector



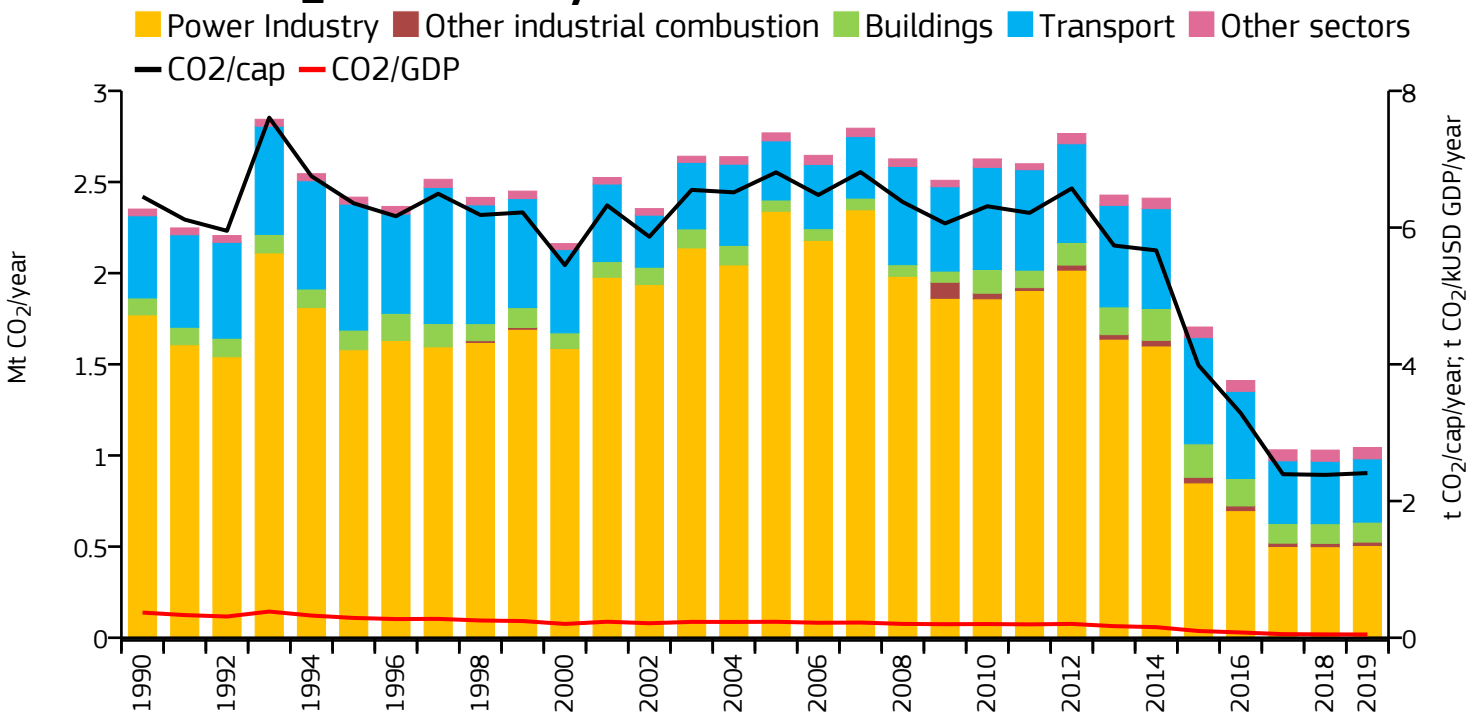
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.031	0.052	0.023	19.689M
2018	0.994	0.052	0.023	19.108M
2005	0.547	0.043	0.022	12.799M
1990	0.385	0.046	0.032	8.465M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+112%	+48%	+4%
Other industrial combustion	+26%	+48%	+4%
Buildings	+109%	+48%	+4%
Transport	+151%	+48%	+4%
Other sectors	+545%	+330%	+3%
All sectors	+168%	+88%	+4%

Malta

Fossil CO_2 emissions by sector



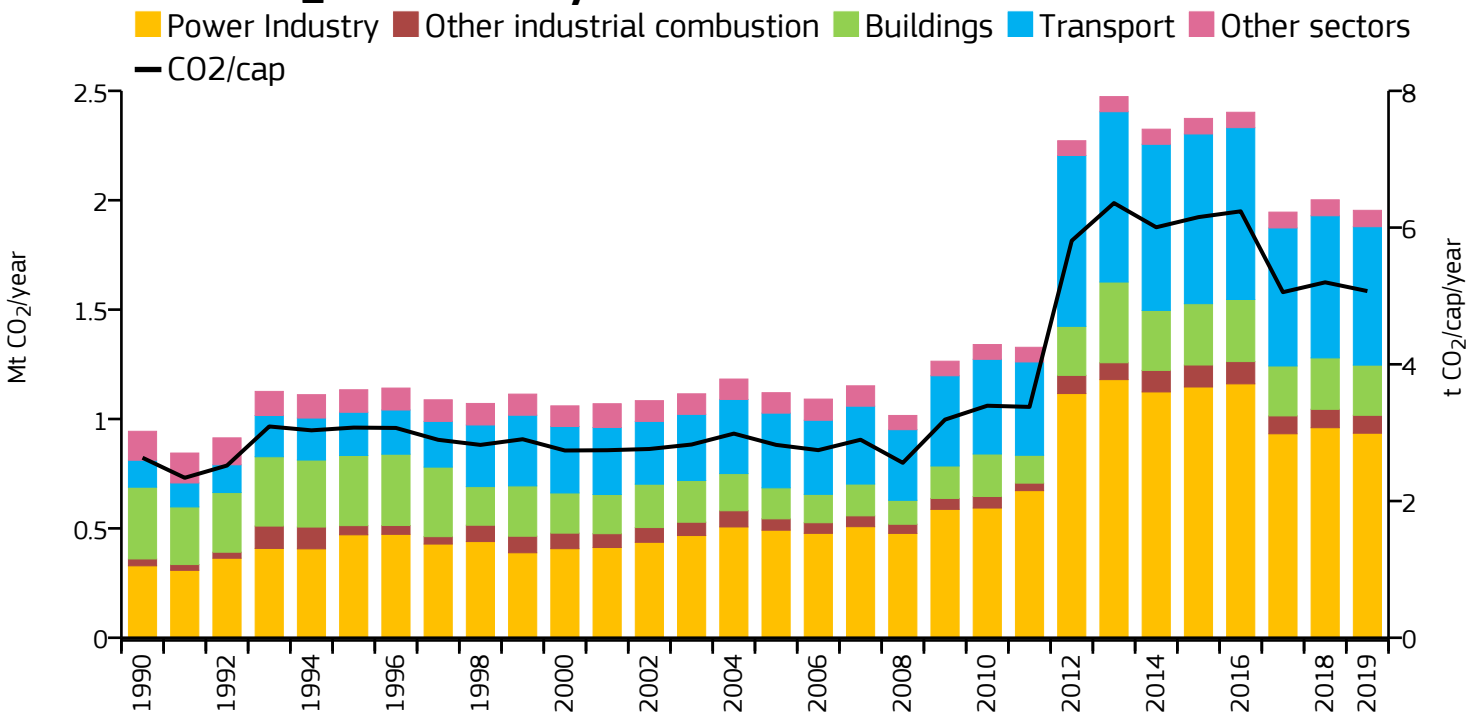
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.044	2.409	0.048	433.245k
2018	1.029	2.382	0.049	432.089k
2005	2.769	6.808	0.234	406.787k
1990	2.352	6.453	0.368	364.431k

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-71%	↘	-78%	→	+1%
Other industrial combustion	↗		↗		→	+1%
Buildings	↗	+18%	↗	+78%	→	+1%
Transport	↘	-23%	↗	+7%	→	+1%
Other sectors	↗	+69%	↗	+42%	→	+2%
All sectors	↘	-56%	↘	-62%	→	+1%

Martinique

Fossil CO_2 emissions by sector

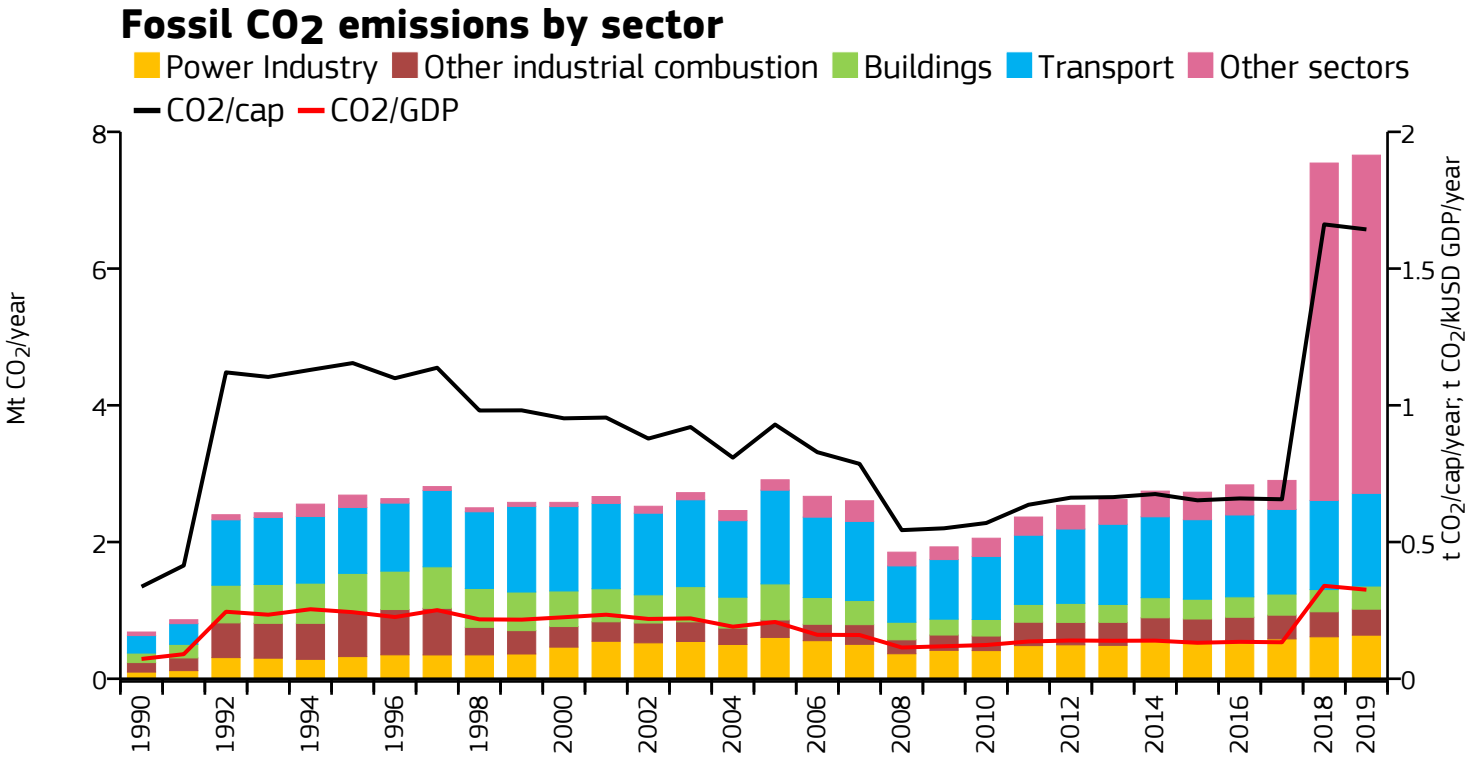


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.954	5.071	n/a	385.320k
2018	2.002	5.199	n/a	385.065k
2005	1.120	2.821	n/a	397.047k
1990	0.944	2.633	n/a	358.449k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+184%	+90%	-3%
Other industrial combustion	+161%	+58%	-3%
Buildings	-30%	+62%	-2%
Transport	+413%	+85%	-3%
Other sectors	-43%	-20%	+3%
All sectors	+107%	+74%	-2%

Mauritania

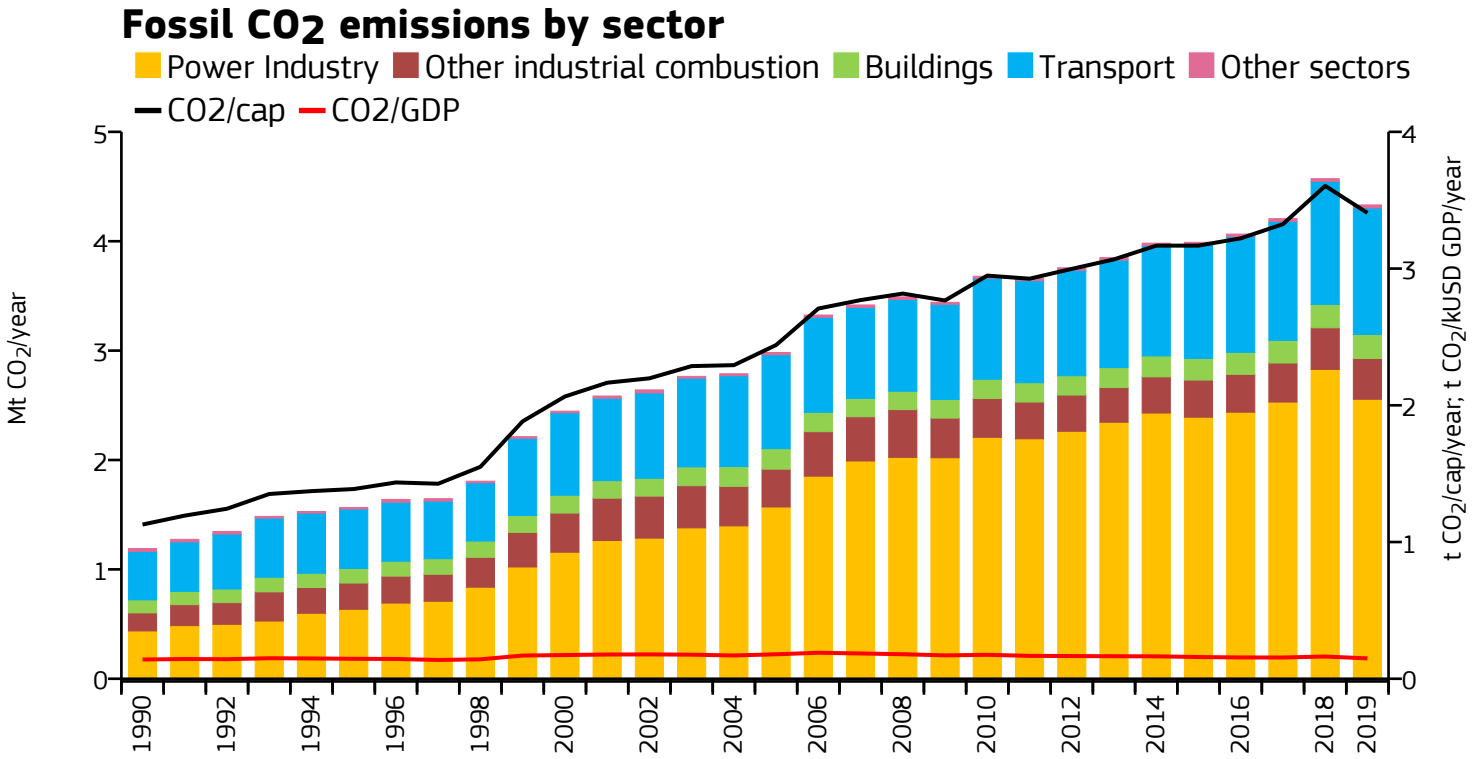


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.659	1.643	0.326	4.661M
2018	7.544	1.662	0.340	4.540M
2005	2.910	0.930	0.208	3.131M
1990	0.684	0.337	0.072	2.030M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+554%	+5%	+4%
Other industrial combustion	+174%	+49%	+4%
Buildings	+143%	-36%	+4%
Transport	+430%	-1%	+4%
Other sectors	+9351%	+3162%	0%
All sectors	+1020%	+163%	+2%

Mauritius



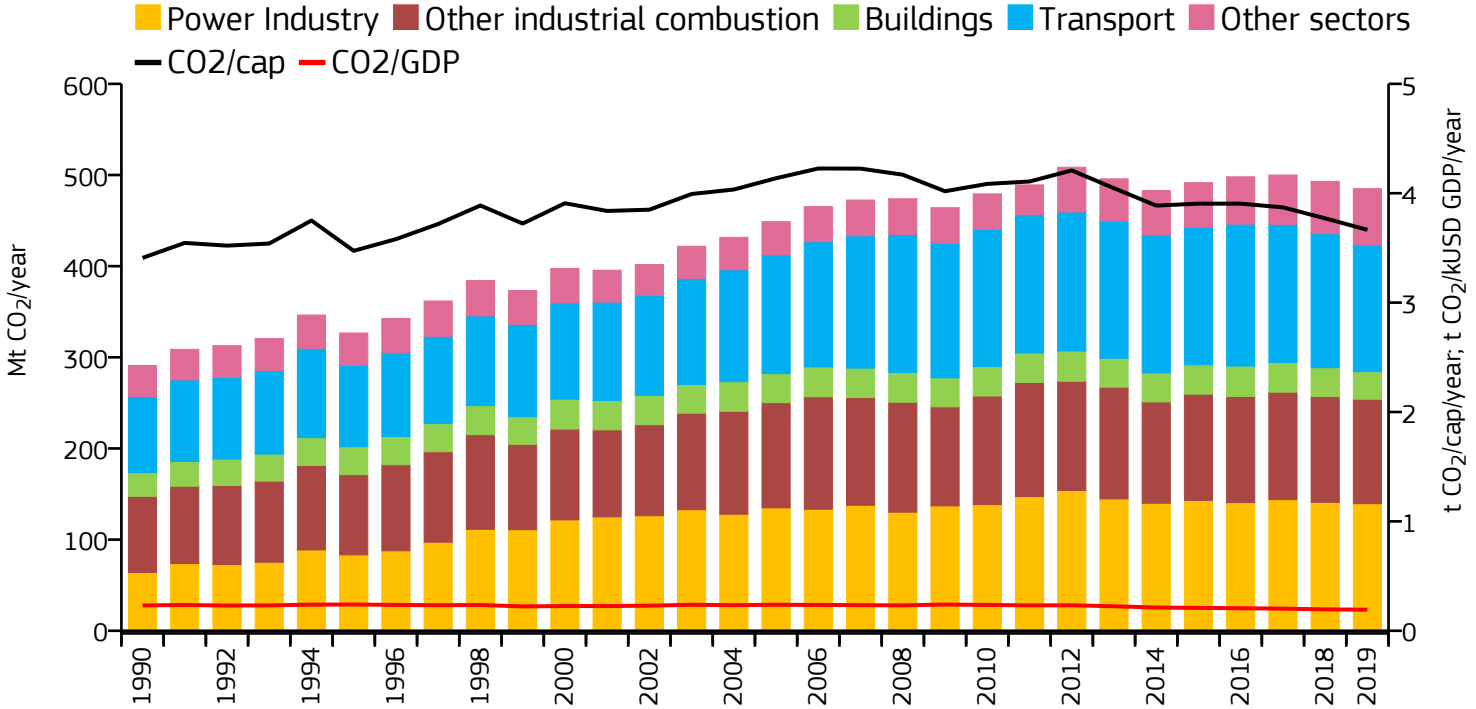
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	4.332	3.407	0.149	1.271M
2018	4.572	3.605	0.163	1.268M
2005	2.983	2.441	0.179	1.222M
1990	1.191	1.128	0.141	1.056M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+485%	+63%	-10%
Other industrial combustion	+126%	+8%	-2%
Buildings	+85%	+17%	+3%
Transport	+161%	+35%	+3%
Other sectors	+2%	+30%	+6%
All sectors	+264%	+45%	-5%

Mexico

Fossil CO_2 emissions by sector



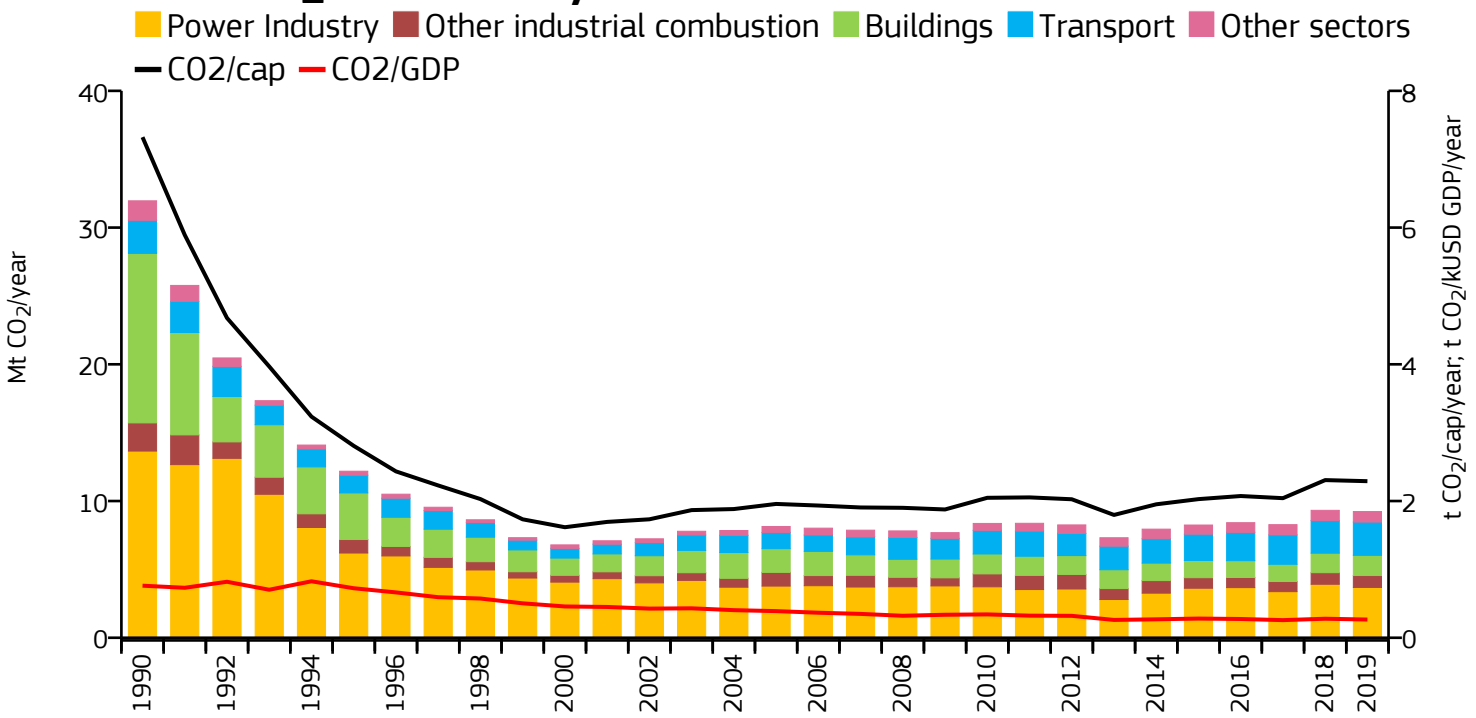
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	485.004	3.665	0.193	132.328M
2018	492.998	3.770	0.195	130.759M
2005	448.785	4.137	0.238	108.472M
1990	290.970	3.409	0.232	85.358M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+118%	+3%	-1%
Other industrial combustion	+37%	-1%	-1%
Buildings	+17%	-5%	-5%
Transport	+66%	+7%	-6%
Other sectors	+82%	+70%	+8%
All sectors	+67%	+8%	-2%

Moldova

Fossil CO_2 emissions by sector

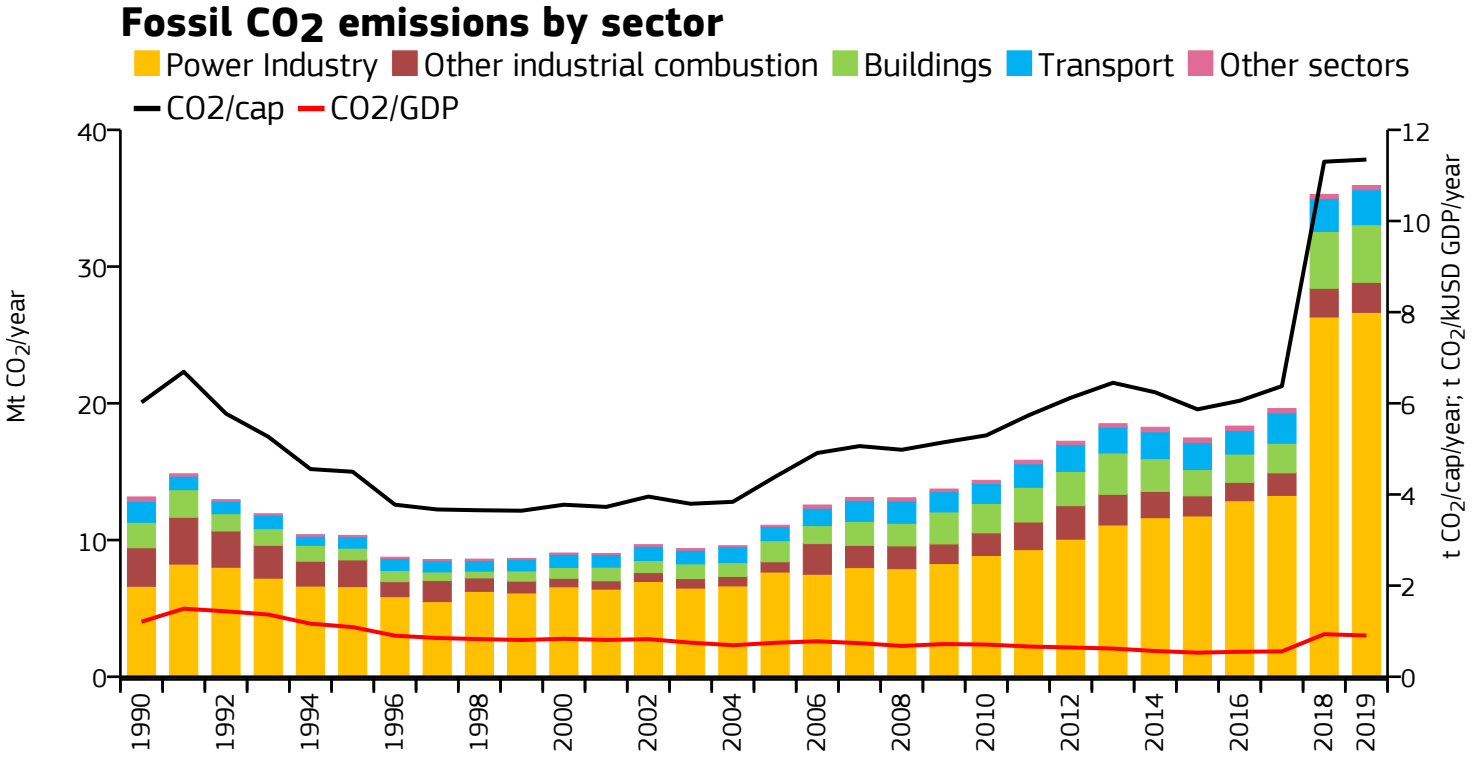


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	9.229	2.290	0.266	4.030M
2018	9.319	2.306	0.278	4.041M
2005	8.139	1.957	0.390	4.158M
1990	31.957	7.323	0.762	4.364M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-73%	-3%	-6%
Other industrial combustion	-58%	-13%	+3%
Buildings	-88%	-15%	+4%
Transport	+1%	+105%	+2%
Other sectors	-46%	+76%	+2%
All sectors	-71%	+13%	-1%

Mongolia



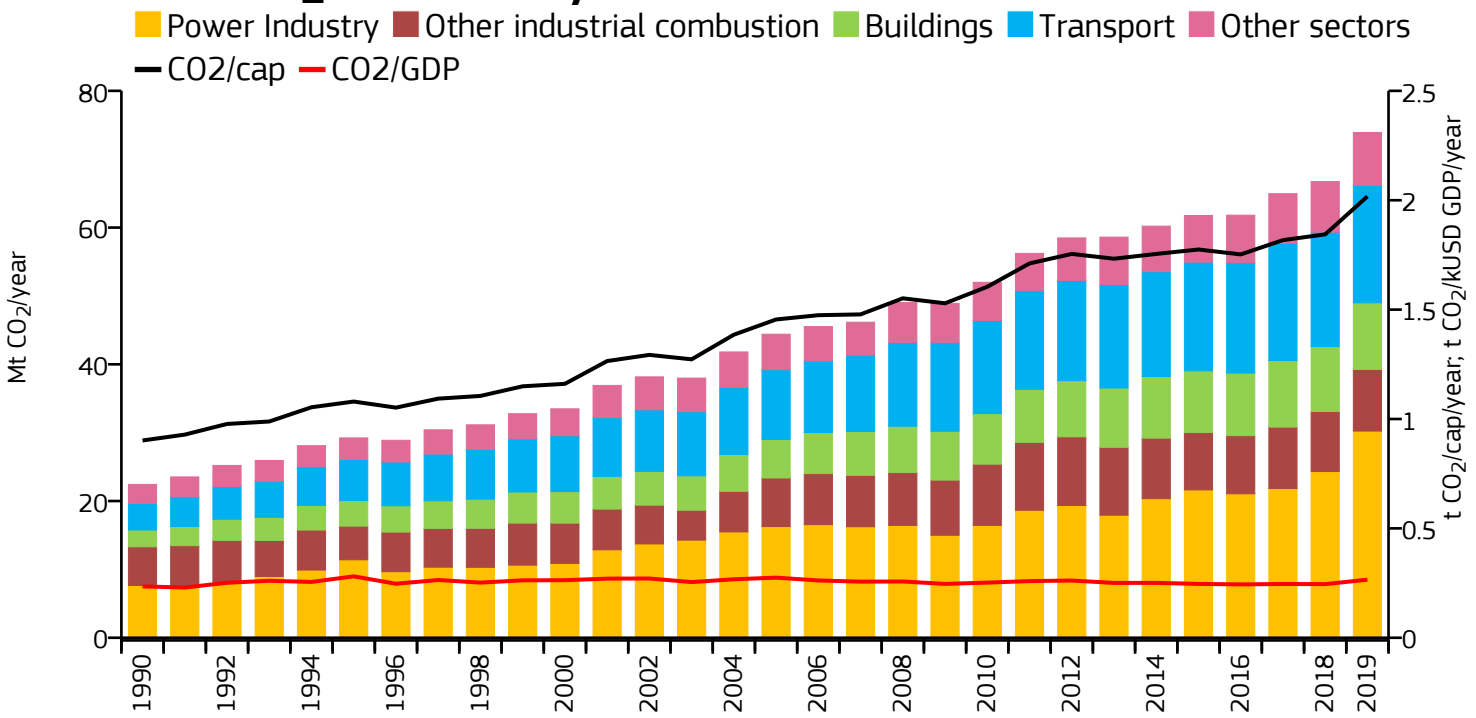
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	35.930	11.348	0.905	3.166M
2018	35.279	11.301	0.934	3.122M
2005	11.083	4.387	0.746	2.526M
1990	13.151	6.021	1.208	2.184M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+303%	+248%	+1%
Other industrial combustion	-22%	+195%	+5%
Buildings	+126%	+172%	+1%
Transport	+65%	+148%	+6%
Other sectors	+1%	+218%	+2%
All sectors	+173%	+224%	+2%

Morocco

Fossil CO_2 emissions by sector



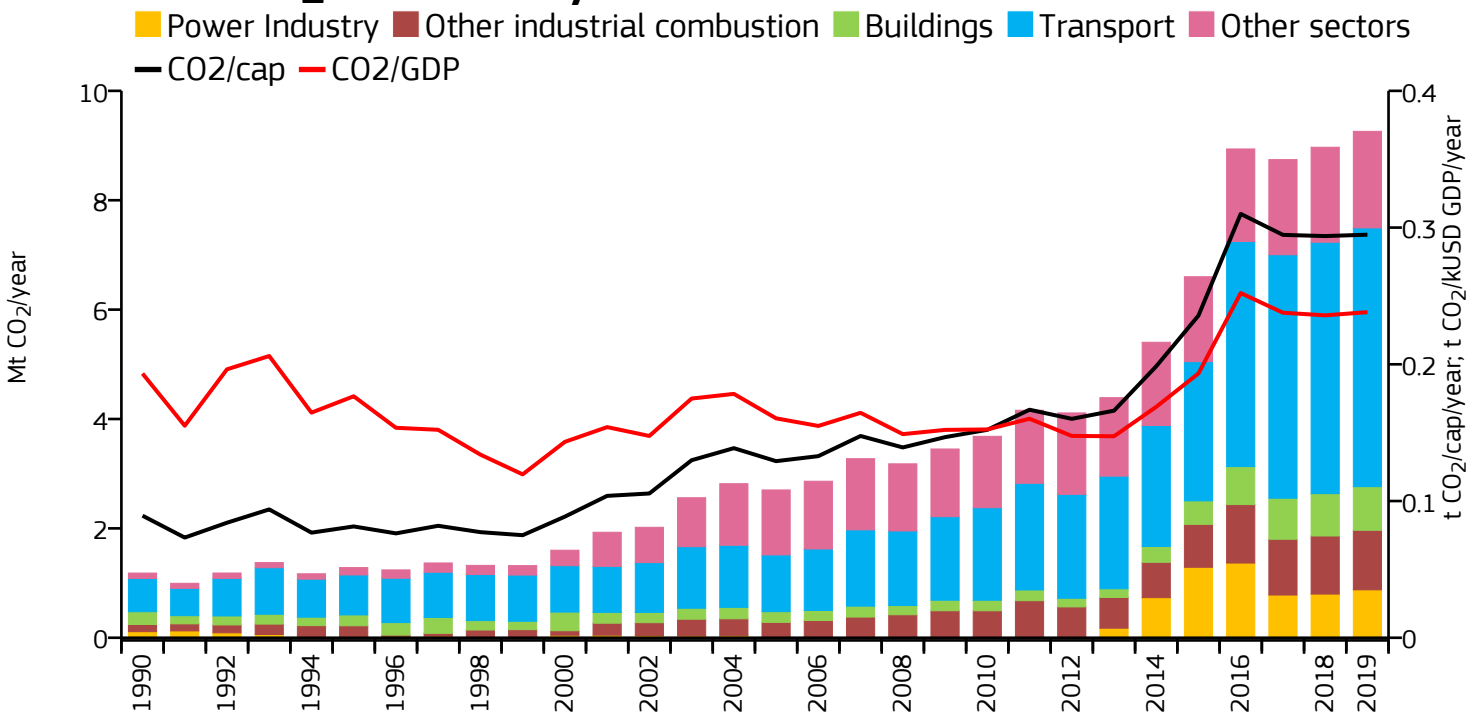
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	73.914	2.018	0.265	36.635M
2018	66.737	1.844	0.245	36.192M
2005	44.405	1.455	0.275	30.521M
1990	22.435	0.902	0.235	24.879M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+295%	+86%	+24%
Other industrial combustion	+59%	+27%	+3%
Buildings	+297%	+72%	+3%
Transport	+341%	+68%	+3%
Other sectors	+179%	+49%	+5%
All sectors	+229%	+66%	+11%

Mozambique

Fossil CO_2 emissions by sector

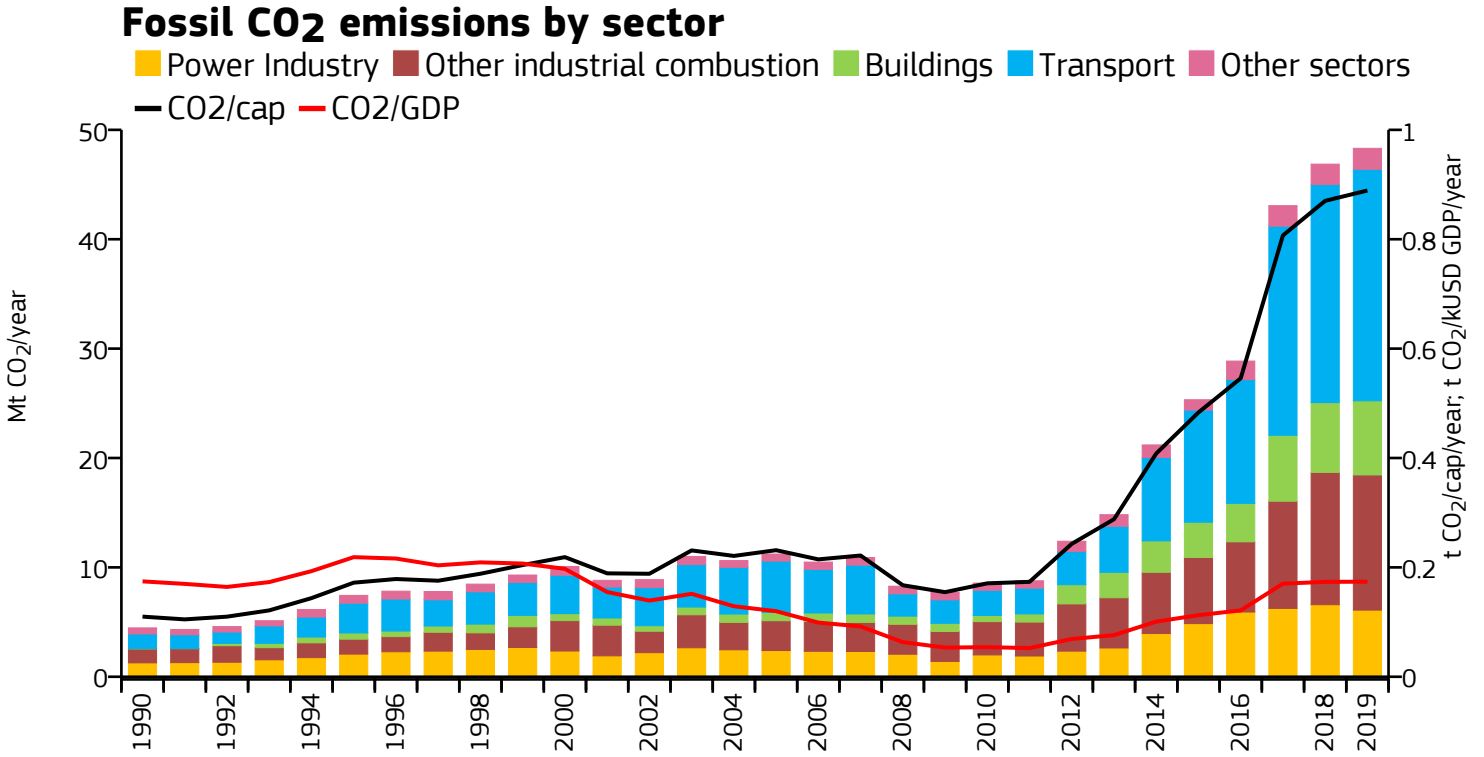


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	9.259	0.295	0.238	31.409M
2018	8.969	0.294	0.236	30.529M
2005	2.703	0.129	0.160	20.923M
1990	1.183	0.089	0.193	13.248M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+687%	+4788%	+10%
Other industrial combustion	+733%	+313%	+3%
Buildings	+241%	+307%	+3%
Transport	+677%	+356%	+3%
Other sectors	+1703%	+49%	+2%
All sectors	+683%	+243%	+3%

Myanmar/Burma

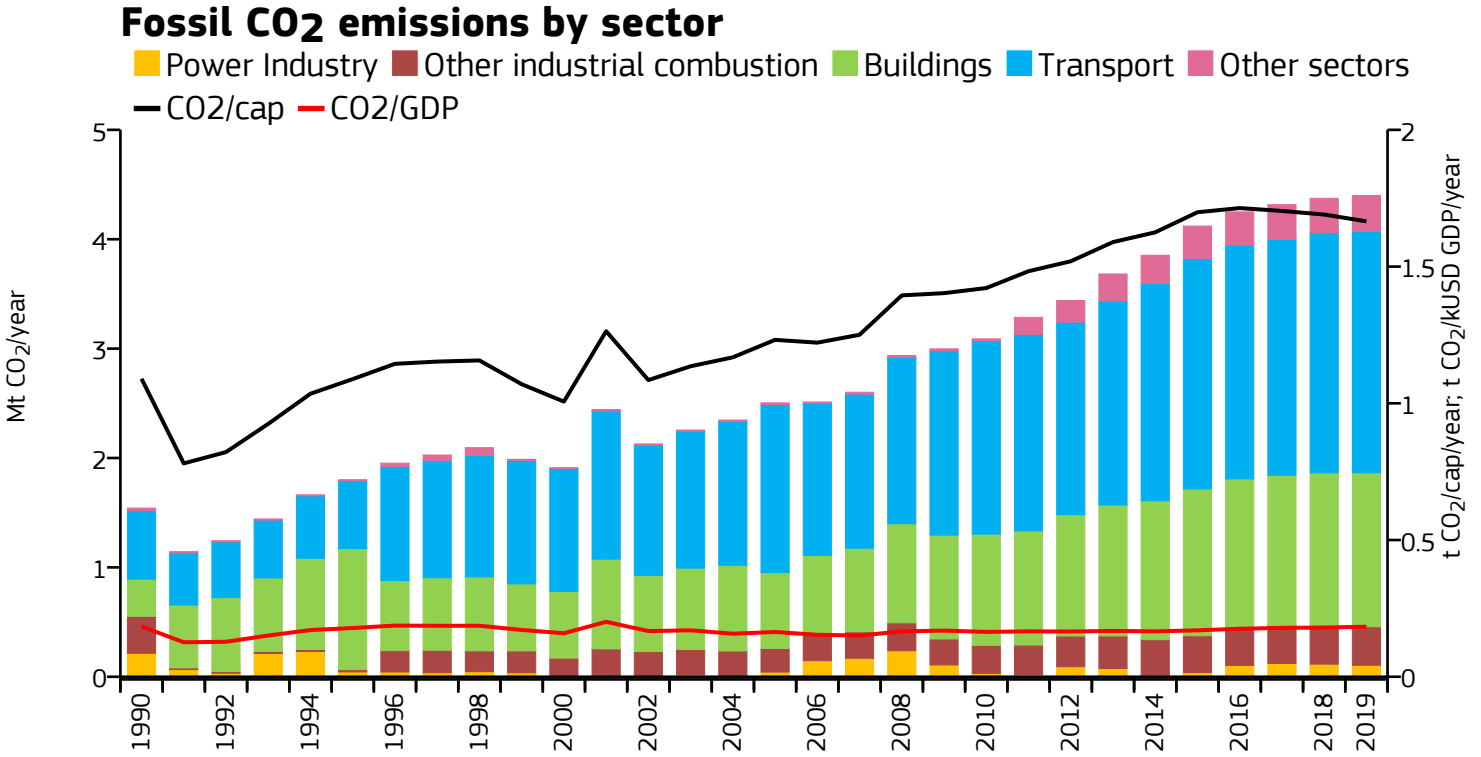


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	48.311	0.889	0.174	54.336M
2018	46.866	0.870	0.174	53.856M
2005	11.221	0.231	0.120	48.483M
1990	4.467	0.110	0.174	40.626M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+379%	+154%	-8%
Other industrial combustion	+860%	+354%	+2%
Buildings	+55932%	+799%	+6%
Transport	+1474%	+350%	+6%
Other sectors	+247%	+197%	+3%
All sectors	+981%	+331%	+3%

Namibia



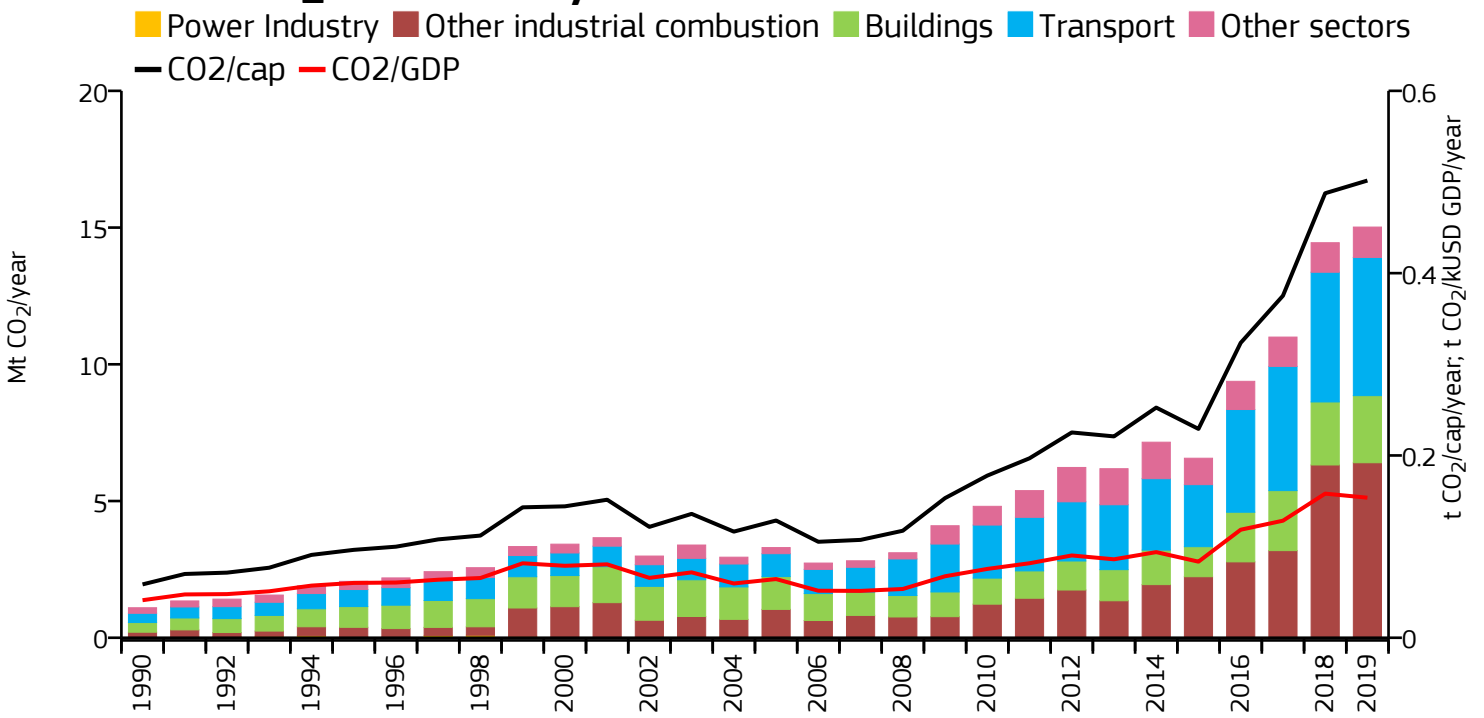
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	4.400	1.665	0.183	2.642M
2018	4.374	1.690	0.180	2.588M
2005	2.504	1.232	0.164	2.032M
1990	1.542	1.090	0.184	1.415M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-51%	+144%	-9%
Other industrial combustion	+4%	+64%	+1%
Buildings	+314%	+103%	+1%
Transport	+252%	+44%	+1%
Other sectors	+1428%	+2191%	+3%
All sectors	+185%	+76%	+1%

Nepal

Fossil CO_2 emissions by sector

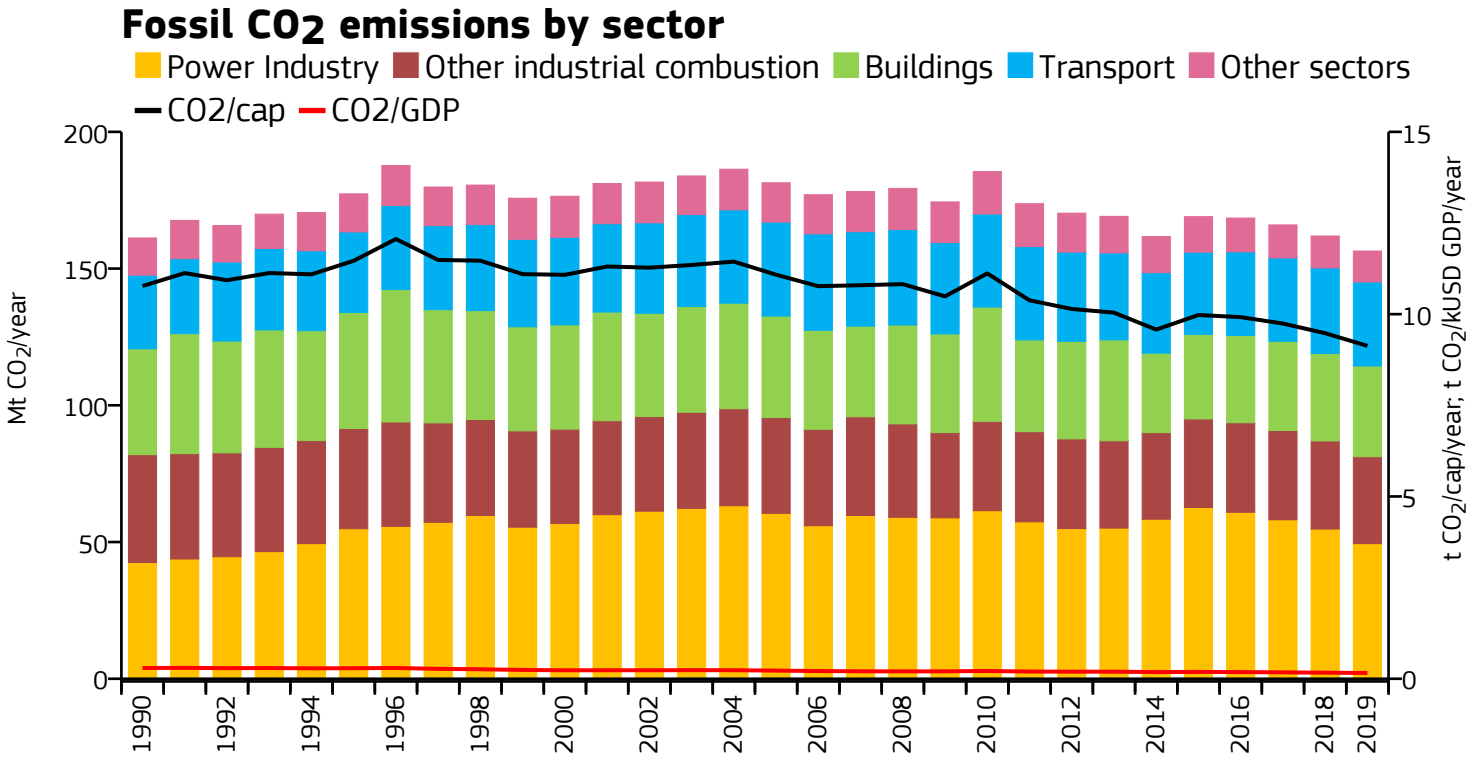


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	15.019	0.502	0.154	29.942M
2018	14.447	0.488	0.158	29.624M
2005	3.298	0.129	0.064	25.640M
1990	1.097	0.059	0.041	18.749M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	n/a	↘	n/a
Other industrial combustion	↗ +3041%	↗ +525%	→ +1%
Buildings	↗ +596%	↗ +104%	↗ +6%
Transport	↗ +1393%	↗ +504%	↗ +7%
Other sectors	↗ +449%	↗ +396%	→ +3%
All sectors	↗ +1269%	↗ +355%	→ +4%

Netherlands



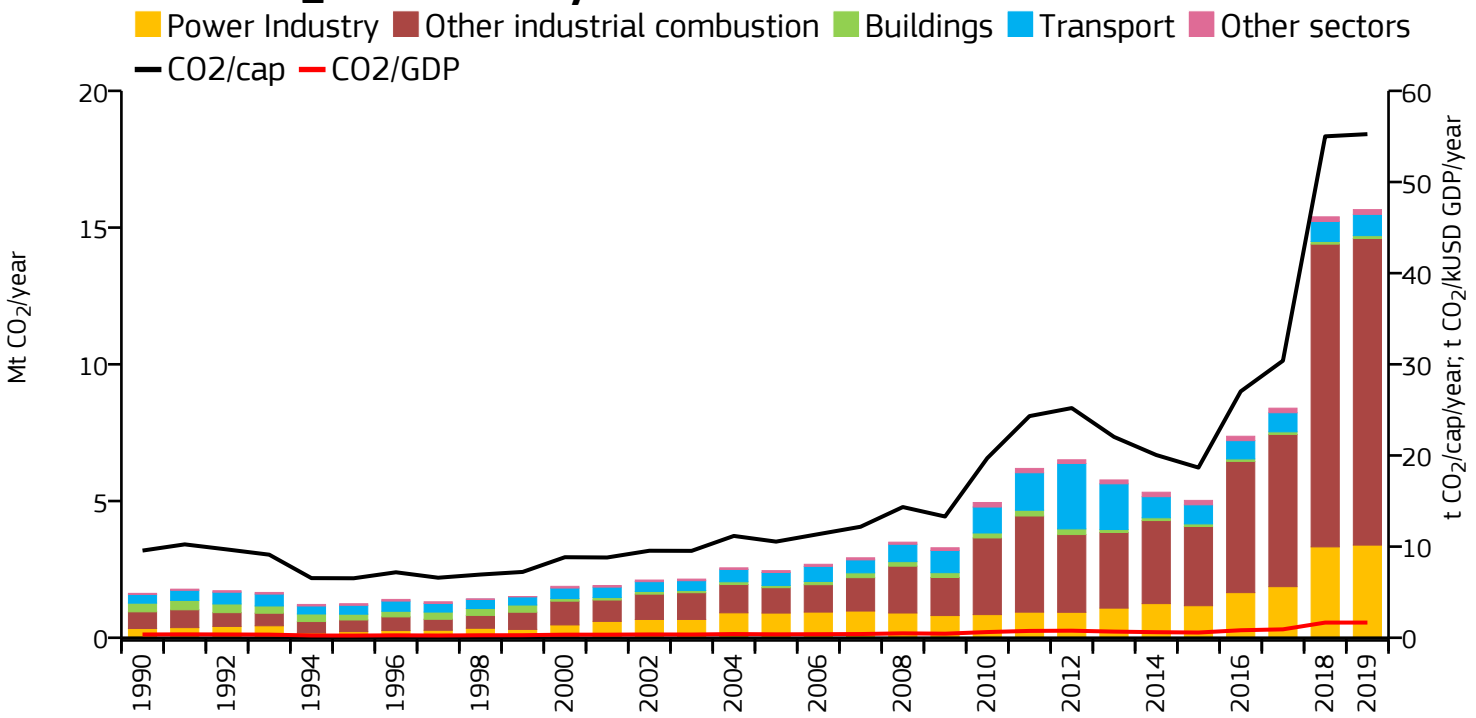
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	156.415	9.129	0.158	17.133M
2018	161.913	9.477	0.166	17.084M
2005	181.382	11.082	0.224	16.367M
1990	161.195	10.771	0.294	14.965M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+16%	-18%	-10%
Other industrial combustion	-19%	-9%	-1%
Buildings	-14%	-11%	+4%
Transport	+14%	-11%	-2%
Other sectors	-17%	-21%	-3%
All sectors	-3%	-14%	-3%

New Caledonia

Fossil CO_2 emissions by sector



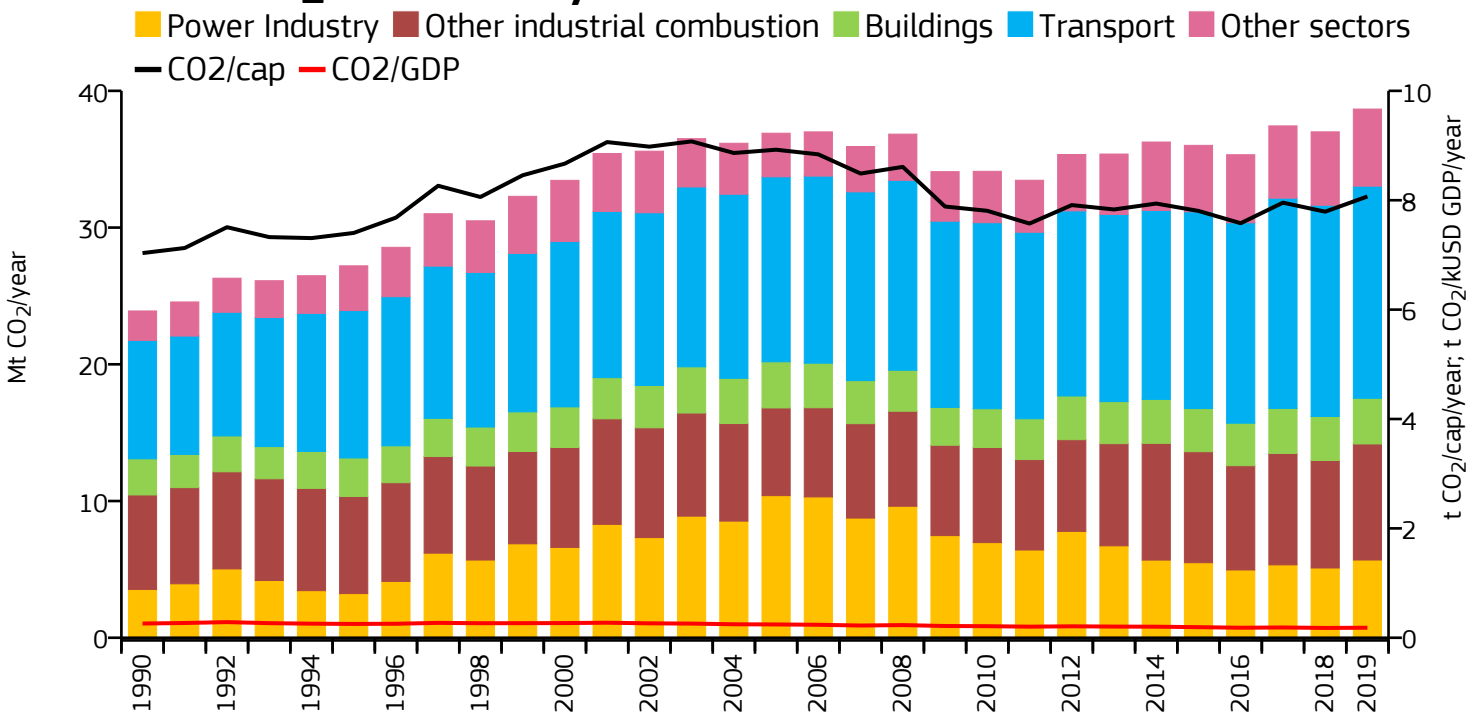
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	15.657	55.250	1.666	283.376k
2018	15.393	55.009	1.664	279.821k
2005	2.454	10.547	0.376	232.686k
1990	1.624	9.564	0.359	169.787k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+905%	+275%	+2%
Other industrial combustion	+1736%	+1108%	+1%
Buildings	-67%	+34%	+7%
Transport	+143%	+63%	+7%
Other sectors	+347%	+158%	+2%
All sectors	+864%	+538%	+2%

New Zealand

Fossil CO_2 emissions by sector

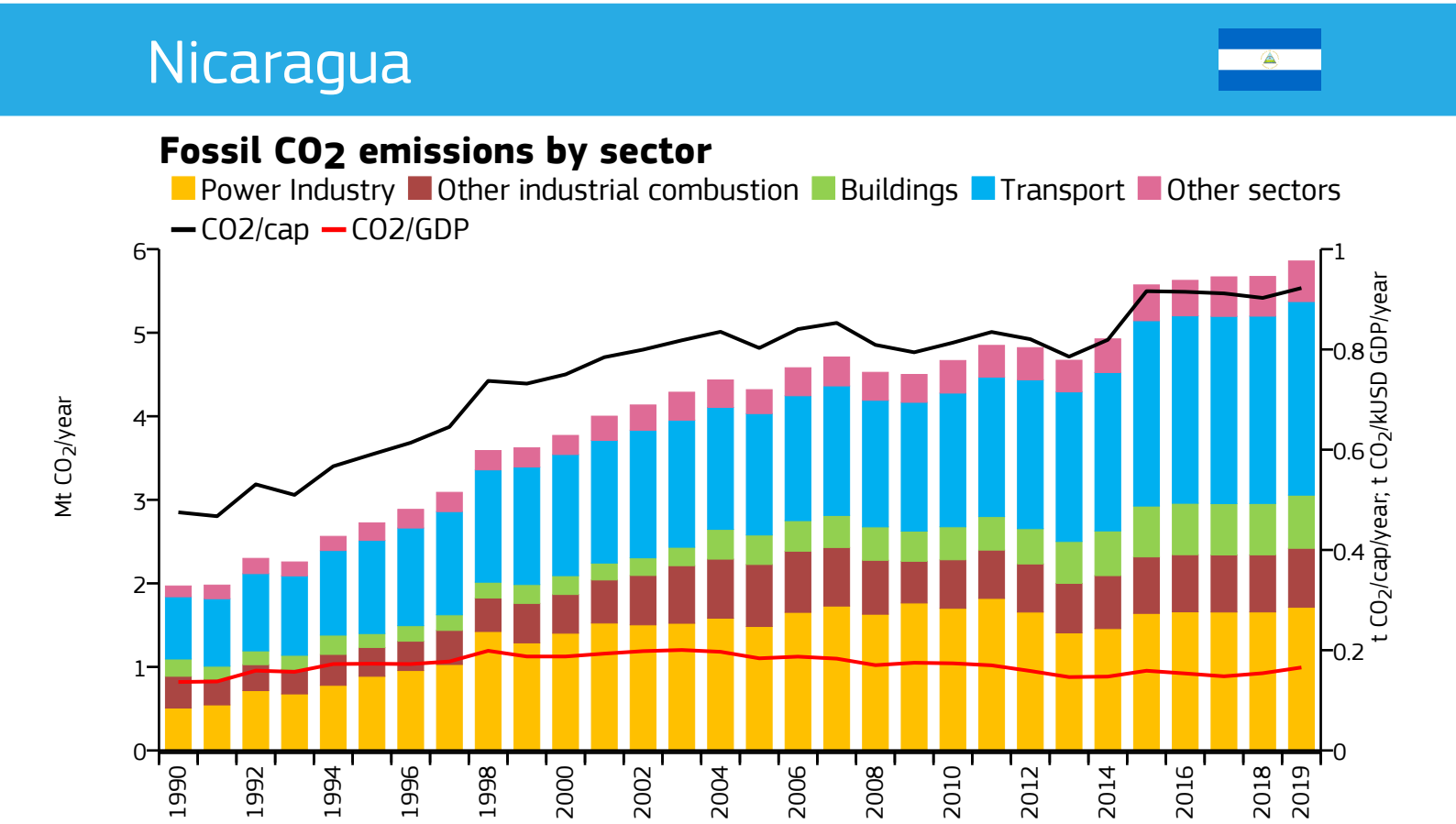


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	38.669	8.069	0.183	4.792M
2018	37.002	7.791	0.179	4.750M
2005	36.904	8.924	0.243	4.135M
1990	23.902	7.034	0.260	3.398M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+61%	-45%	+11%
Other industrial combustion	+23%	+32%	+8%
Buildings	+26%	-1%	+4%
Transport	+79%	+15%	0%
Other sectors	+162%	+77%	+5%
All sectors	+62%	+5%	+5%

Nicaragua



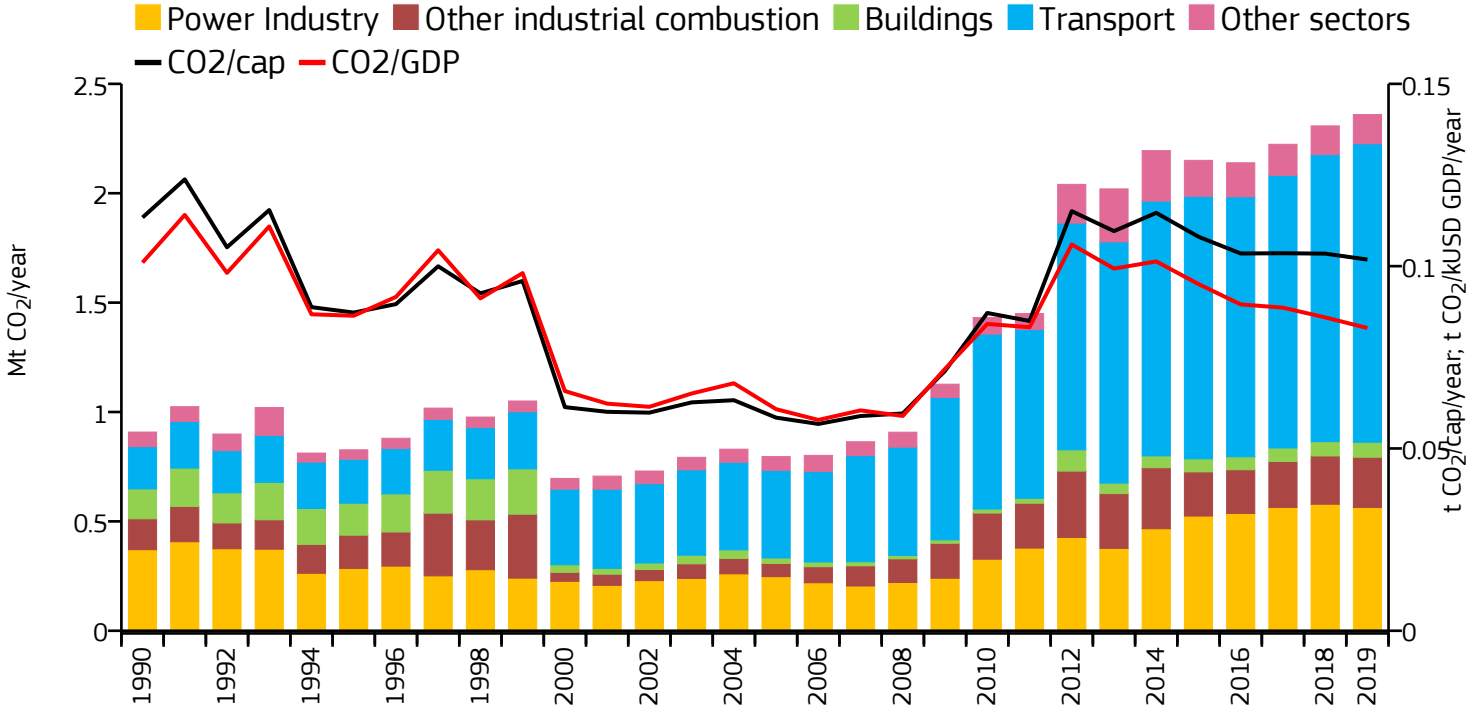
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5.859	0.922	0.166	6.351M
2018	5.674	0.903	0.154	6.285M
2005	4.319	0.803	0.184	5.379M
1990	1.969	0.475	0.137	4.145M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+237%	+15%	+3%
Other industrial combustion	+86%	-5%	+3%
Buildings	+207%	+80%	+3%
Transport	+211%	+59%	+3%
Other sectors	+275%	+70%	+2%
All sectors	+198%	+36%	+3%

Niger

Fossil CO_2 emissions by sector



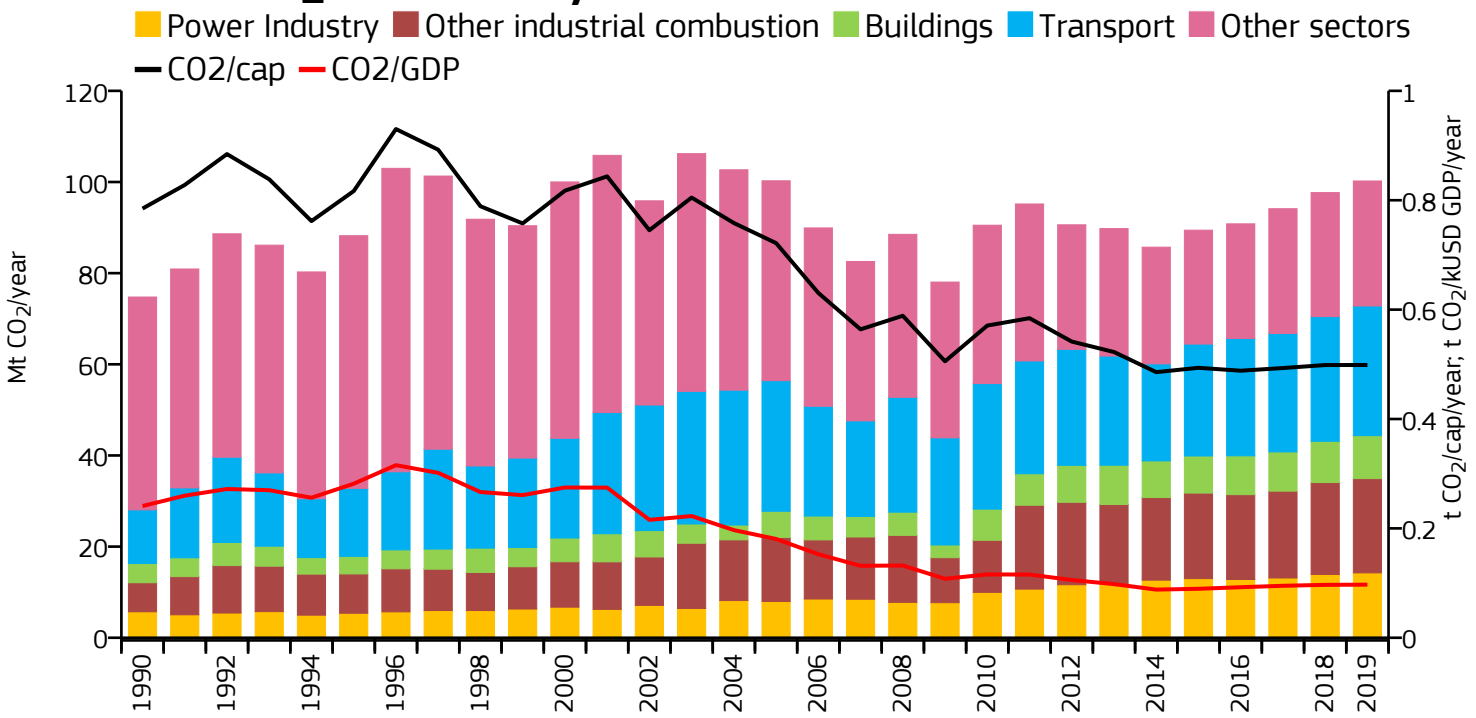
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.360	0.102	0.083	23.177M
2018	2.308	0.103	0.086	22.311M
2005	0.796	0.058	0.061	13.618M
1990	0.908	0.113	0.101	8.013M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+52%	+128%	-2%
Other industrial combustion	+62%	+281%	+4%
Buildings	-50%	+172%	+4%
Transport	+607%	+241%	+4%
Other sectors	+100%	+112%	+2%
All sectors	+160%	+196%	+2%

Nigeria

Fossil CO_2 emissions by sector

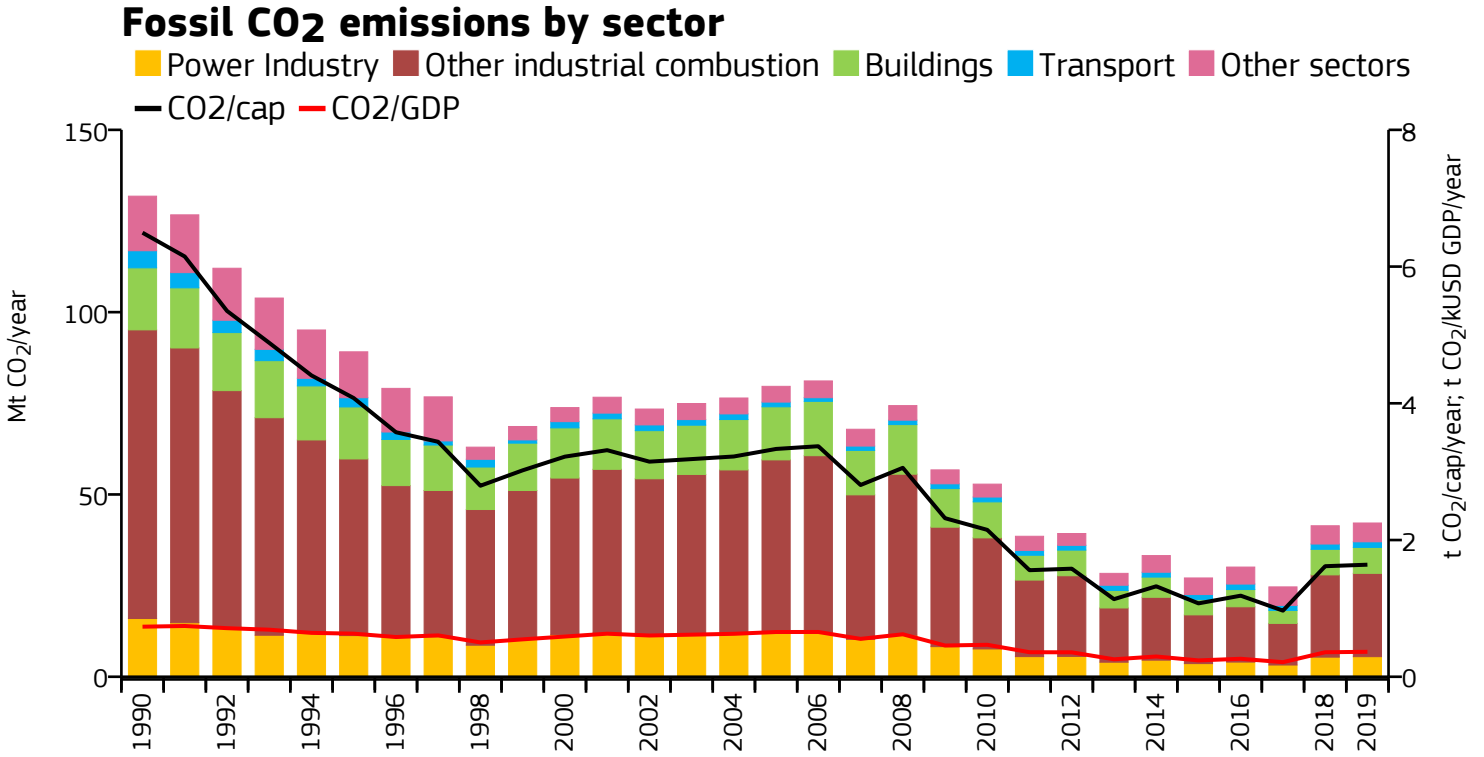


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	100.223	0.499	0.097	200.962M
2018	97.672	0.499	0.097	195.875M
2005	100.263	0.722	0.181	138.939M
1990	74.763	0.785	0.241	95.270M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+150%	+79%	+3%
Other industrial combustion	+225%	+47%	+3%
Buildings	+123%	+64%	+4%
Transport	+142%	-1%	+4%
Other sectors	-41%	-37%	+1%
All sectors	+34%	0%	+3%

North Korea



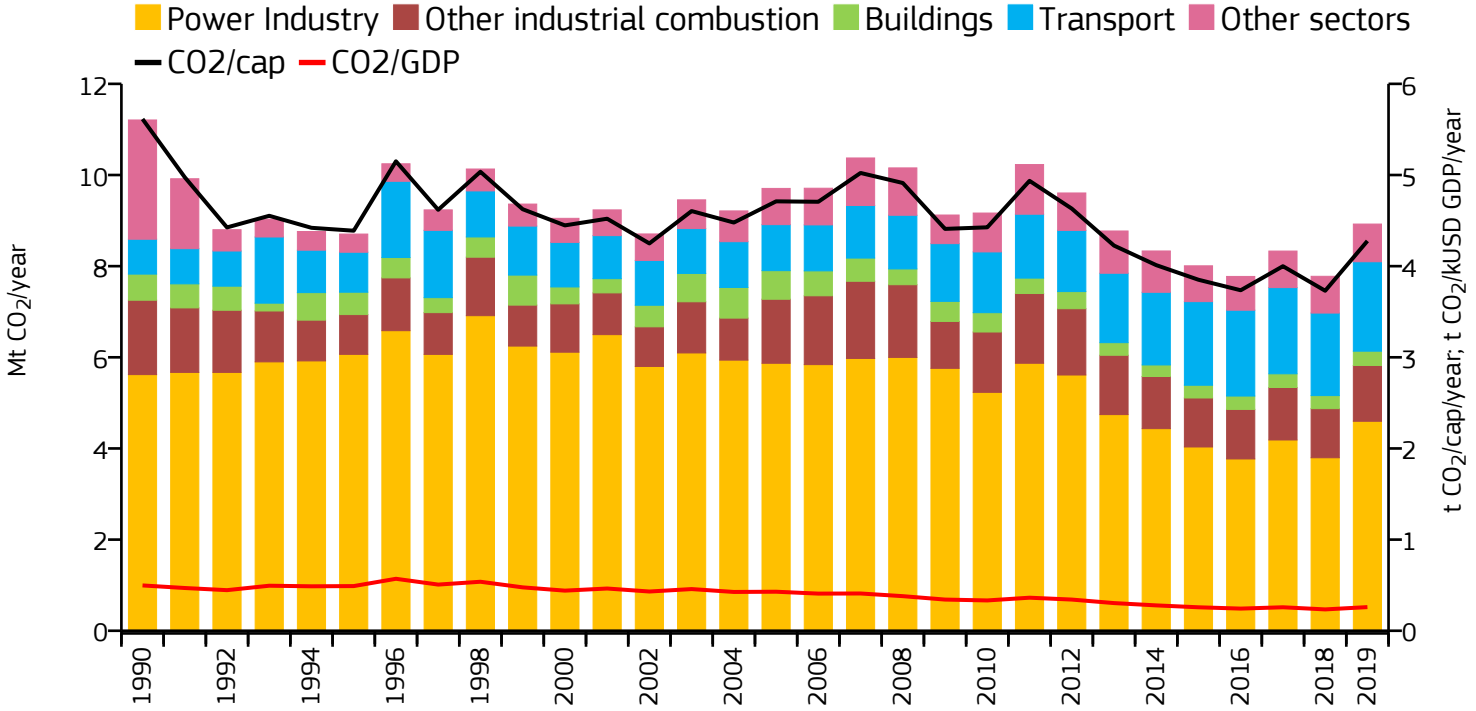
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	42.173	1.639	0.365	25.727M
2018	41.414	1.617	0.358	25.611M
2005	79.656	3.332	0.655	23.904M
1990	131.815	6.496	0.732	20.293M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-66%	↘	-55%	→	+2%
Other industrial combustion	↘	-71%	↘	-52%	→	+1%
Buildings	↘	-58%	↘	-51%	→	+1%
Transport	↘	-67%	↗	+18%	↗	+7%
Other sectors	↘	-66%	↗	+20%	→	+3%
All sectors	↘	-68%	↘	-47%	→	+2%

North Macedonia

Fossil CO_2 emissions by sector



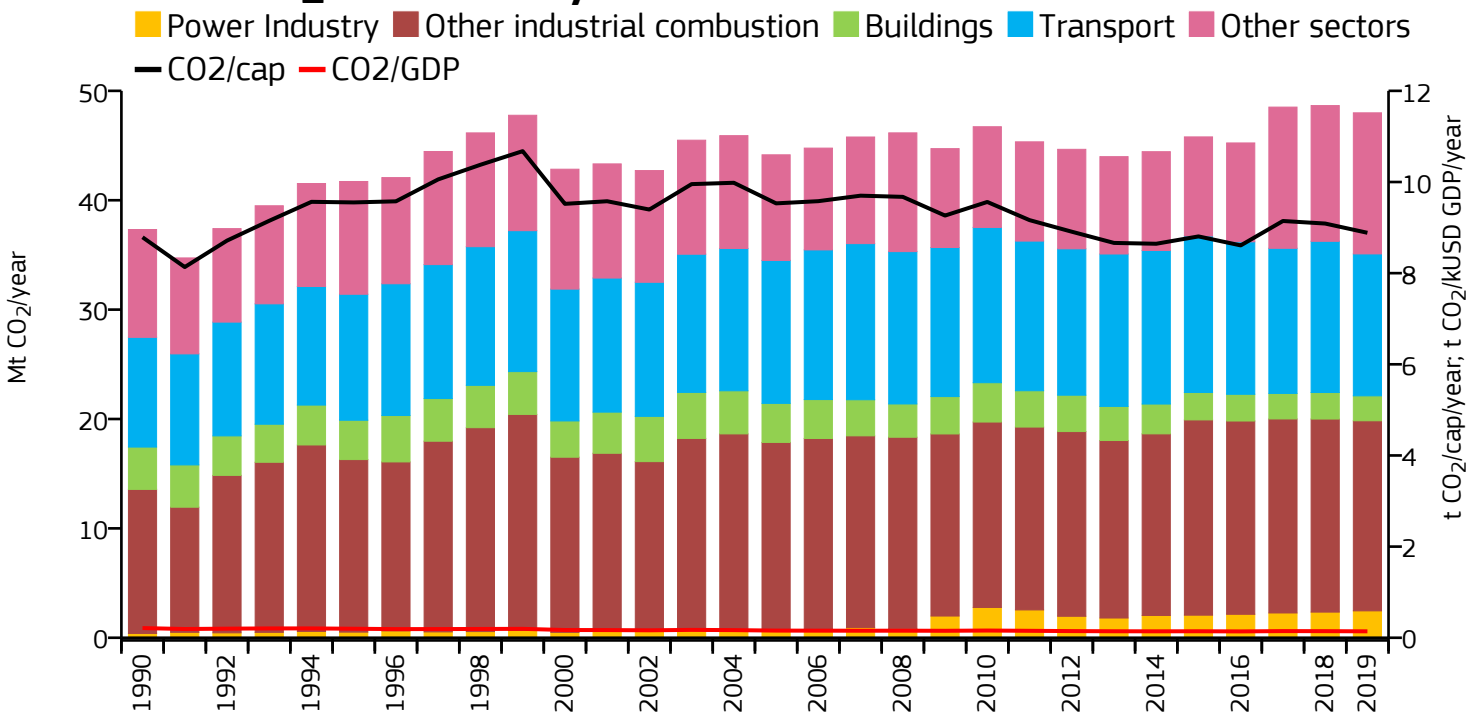
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	8.924	4.276	0.259	2.087M
2018	7.777	3.730	0.234	2.085M
2005	9.706	4.711	0.428	2.060M
1990	11.208	5.614	0.497	1.996M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-18%	-22%	+21%
Other industrial combustion	-25%	-13%	+14%
Buildings	-45%	-50%	+9%
Transport	+156%	+94%	+8%
Other sectors	-68%	+4%	+3%
All sectors	-20%	-8%	+15%

Norway

Fossil CO_2 emissions by sector

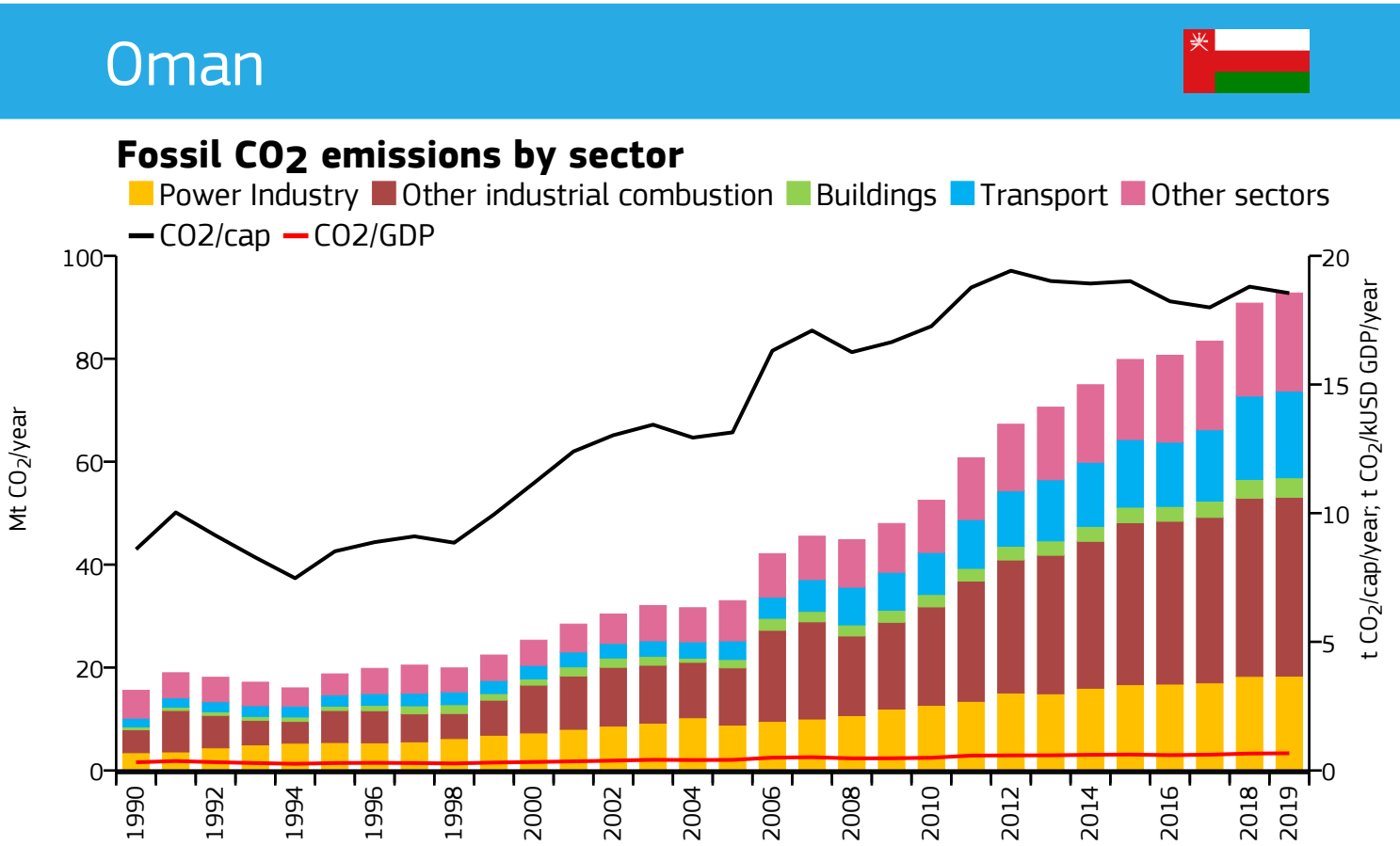


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	47.991	8.886	0.141	5.401M
2018	48.654	9.088	0.145	5.353M
2005	44.152	9.531	0.157	4.632M
1990	37.324	8.788	0.213	4.247M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+525%	+253%	+5%
Other industrial combustion	+32%	+1%	-2%
Buildings	-41%	-36%	-6%
Transport	+29%	-1%	-6%
Other sectors	+31%	+34%	+4%
All sectors	+29%	+9%	-1%

Oman



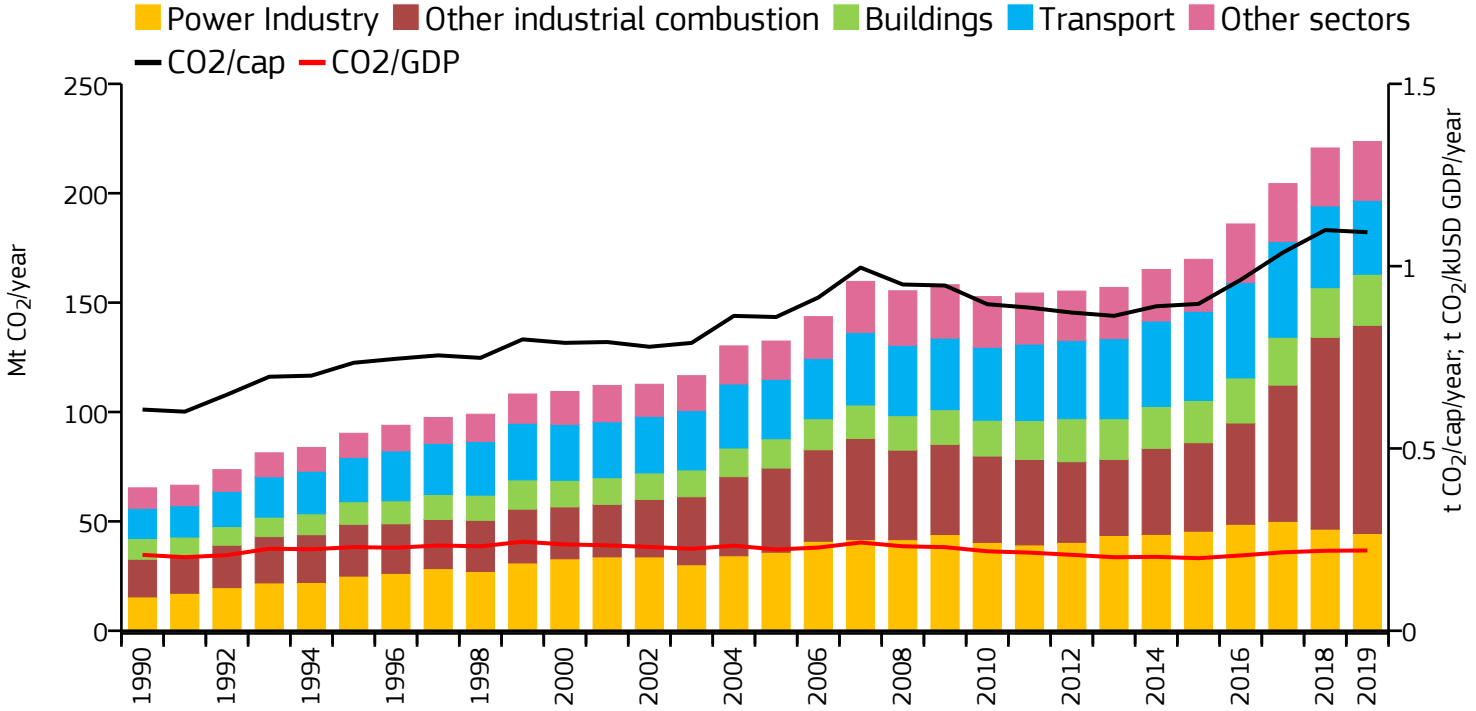
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	92.781	18.549	0.669	5.002M
2018	90.810	18.802	0.658	4.830M
2005	32.998	13.140	0.412	2.511M
1990	15.578	8.597	0.319	1.812M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+431%	+108%	0%
Other industrial combustion	+681%	+212%	0%
Buildings	+559%	+133%	+3%
Transport	+900%	+366%	+4%
Other sectors	+252%	+144%	+6%
All sectors	+496%	+181%	+2%

Pakistan

Fossil CO_2 emissions by sector



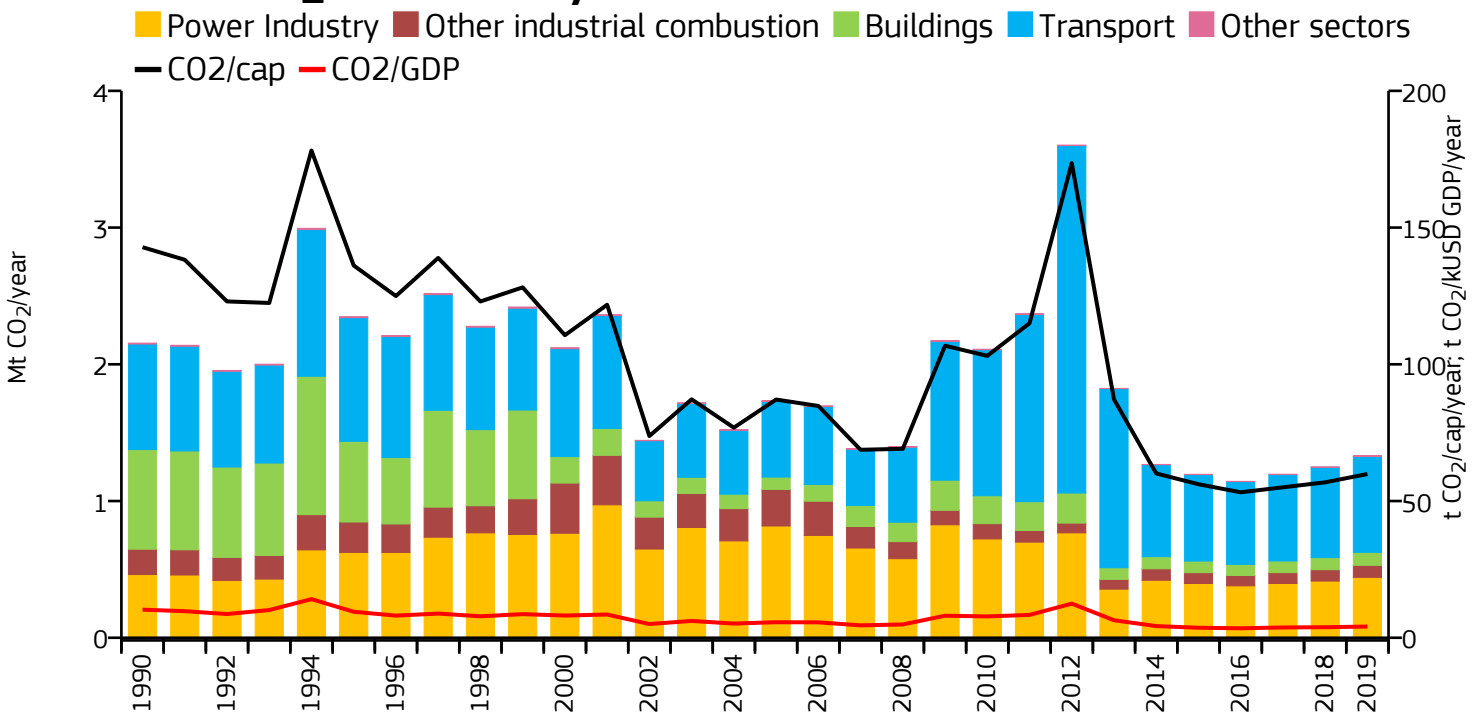
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	223.626	1.093	0.220	204.596M
2018	220.689	1.099	0.219	200.814M
2005	132.438	0.860	0.223	153.910M
1990	65.327	0.607	0.208	107.679M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+187%	+24%	-4%
Other industrial combustion	+453%	+147%	+9%
Buildings	+146%	+74%	+3%
Transport	+145%	+24%	-10%
Other sectors	+187%	+54%	+1%
All sectors	+242%	+69%	+1%

Palau

Fossil CO_2 emissions by sector



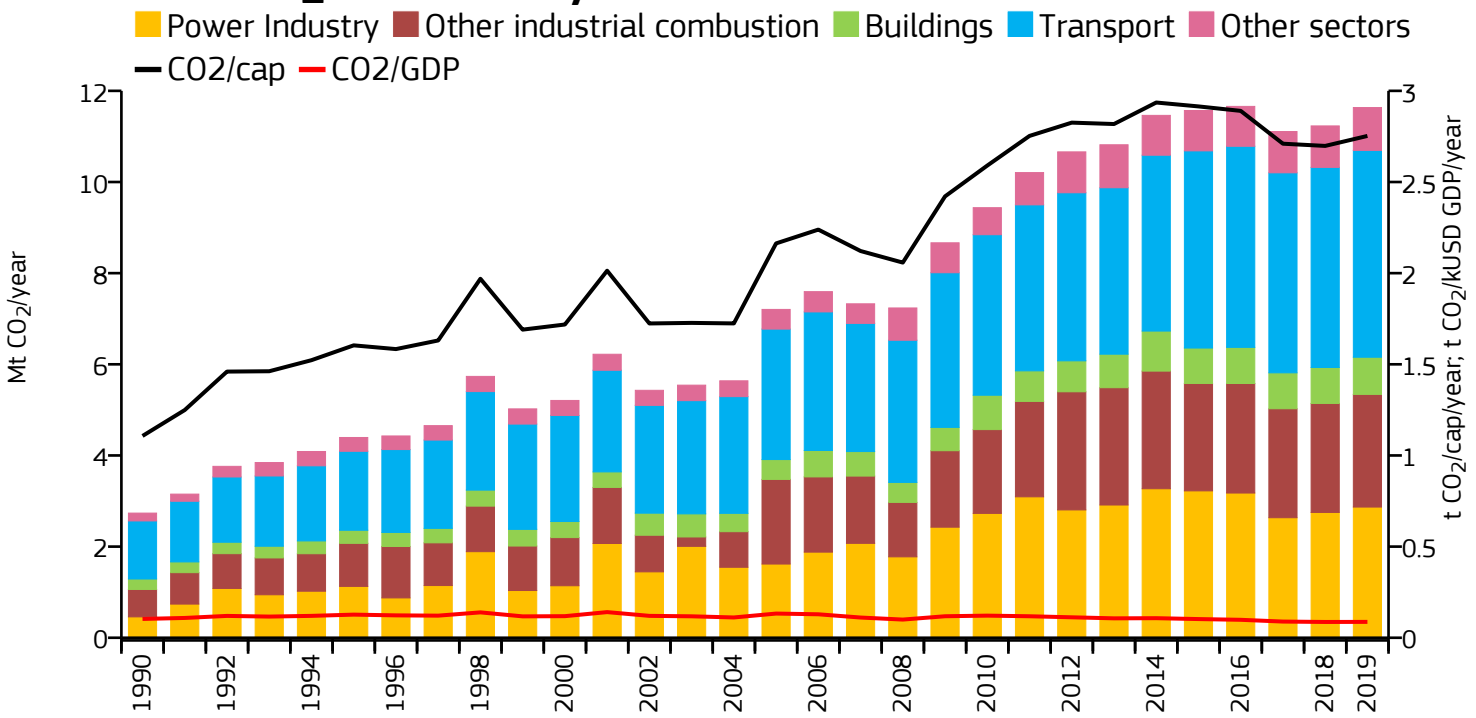
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.330	59.879	4.089	22.206k
2018	1.248	56.833	3.858	21.964k
2005	1.734	87.114	5.681	19.906k
1990	2.155	142.826	10.273	15.088k

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	→	-4%	↘	-46%	↗	+7%
Other industrial combustion	↘	-53%	↘	-67%	↗	+7%
Buildings	↘	-87%	→	+5%	↗	+7%
Transport	↘	-9%	↗	+27%	↗	+7%
Other sectors	↘	-90%	↘	-86%	↘	-21%
All sectors	↘	-38%	↘	-23%	↗	+7%

Panama

Fossil CO_2 emissions by sector



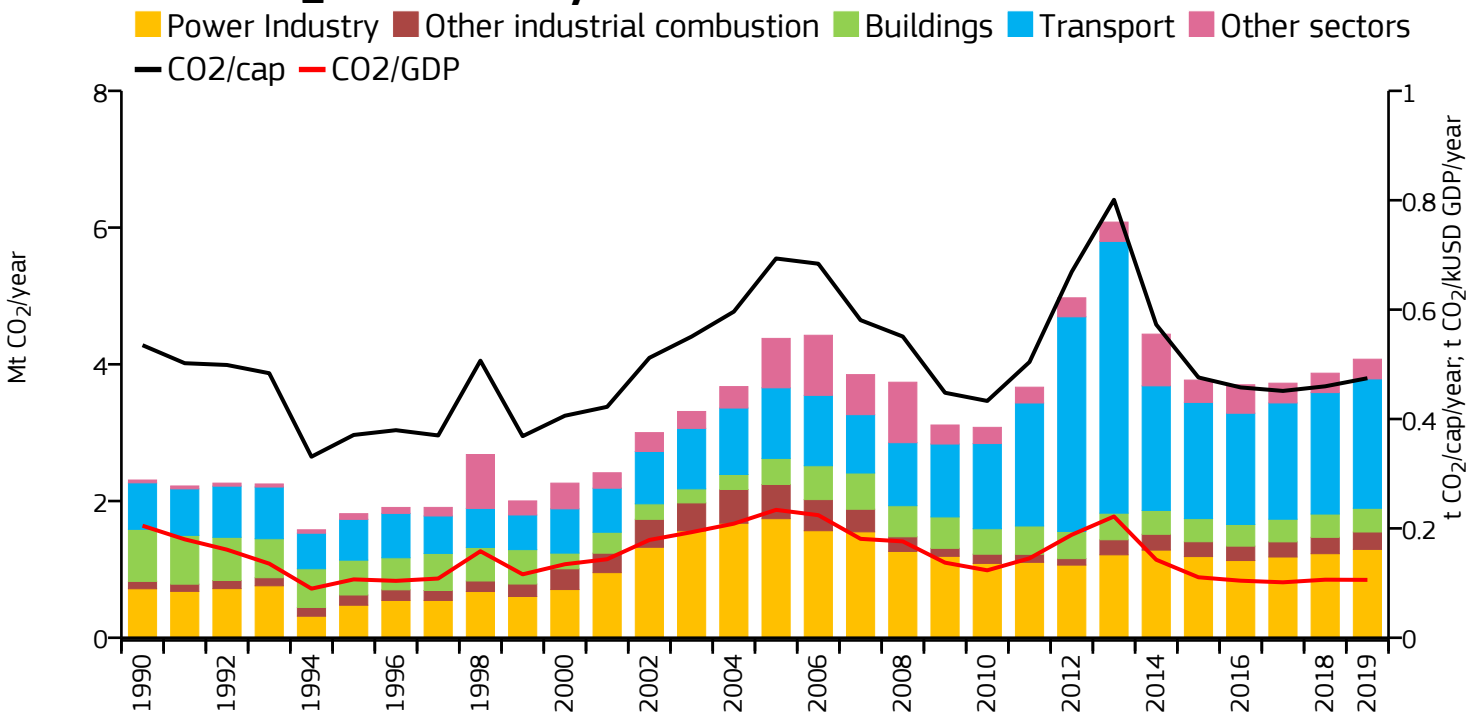
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	11.634	2.753	0.087	4.226M
2018	11.231	2.698	0.087	4.163M
2005	7.204	2.163	0.133	3.330M
1990	2.735	1.107	0.103	2.471M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+526%	+77%	+4%
Other industrial combustion	+311%	+33%	+3%
Buildings	+256%	+87%	+3%
Transport	+256%	+59%	+3%
Other sectors	+447%	+118%	+3%
All sectors	+325%	+61%	+4%

Papua New Guinea

Fossil CO_2 emissions by sector

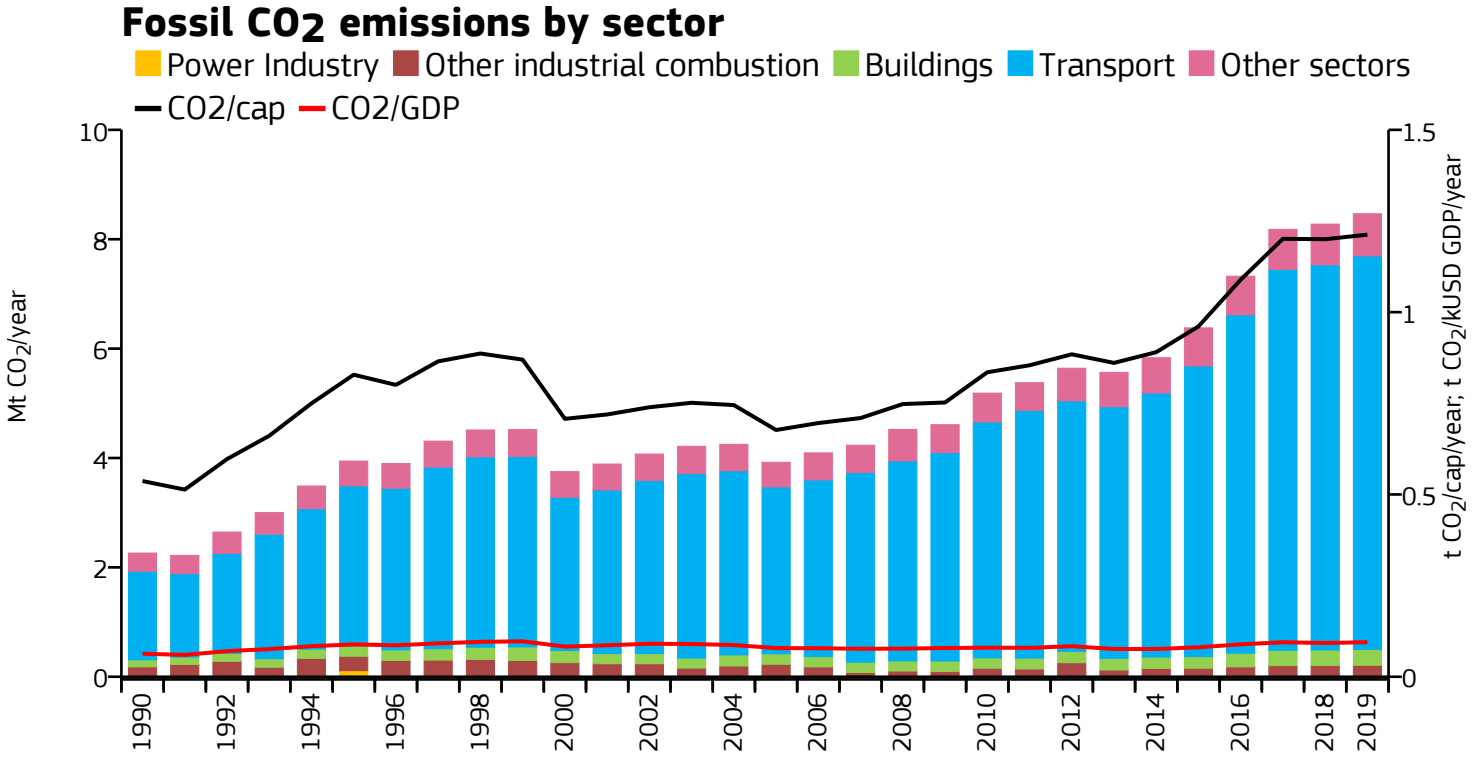


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	4.075	0.475	0.106	8.587M
2018	3.870	0.460	0.106	8.418M
2005	4.379	0.693	0.234	6.315M
1990	2.307	0.535	0.205	4.313M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+80%	-26%	+5%
Other industrial combustion	+136%	-49%	+6%
Buildings	-54%	-9%	+2%
Transport	+178%	+83%	+7%
Other sectors	+600%	-60%	+1%
All sectors	+77%	-7%	+5%

Paraguay



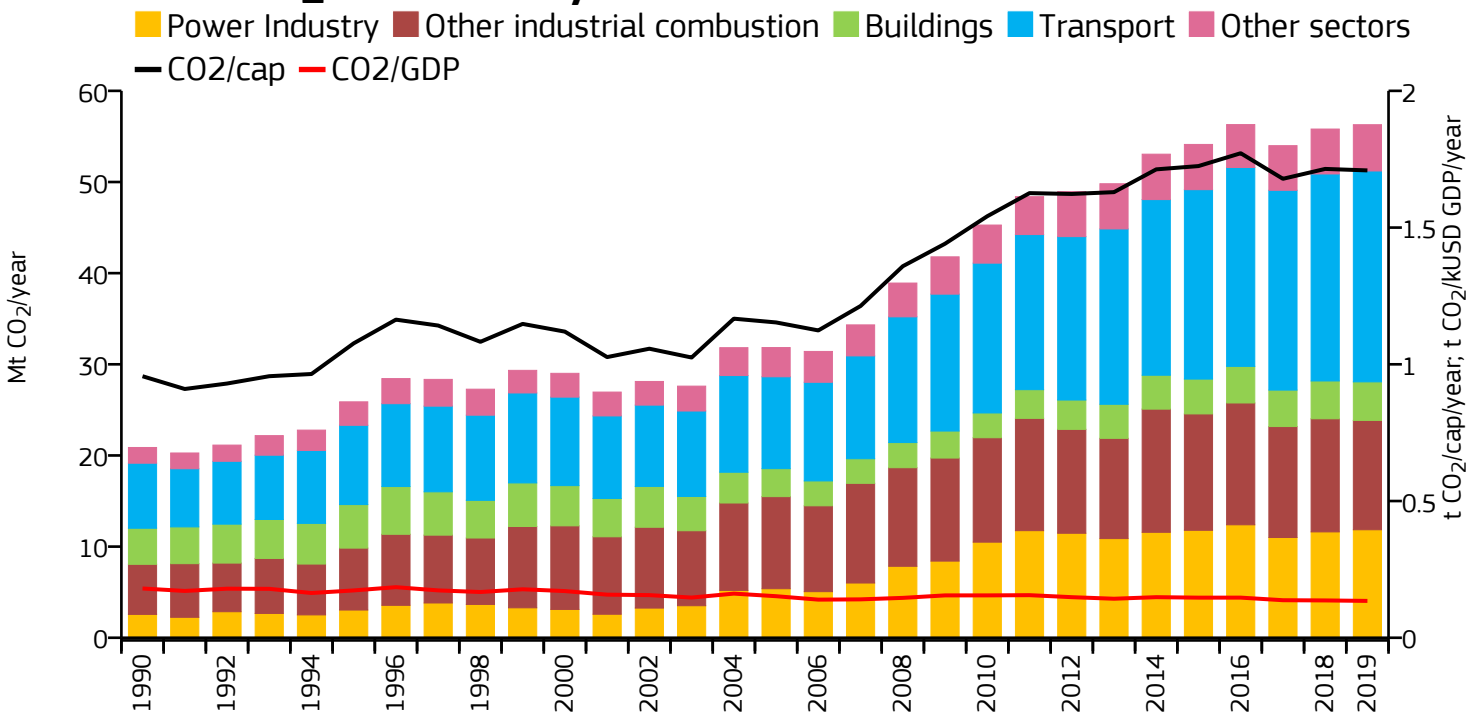
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	8.466	1.213	0.095	6.982M
2018	8.277	1.200	0.093	6.897M
2005	3.922	0.677	0.079	5.795M
1990	2.262	0.537	0.063	4.214M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-32%		+2%
Other industrial combustion	+18%	-10%	+2%
Buildings	+127%	+52%	+2%
Transport	+344%	+136%	+2%
Other sectors	+132%	+70%	+3%
All sectors	+274%	+116%	+2%

Peru

Fossil CO_2 emissions by sector



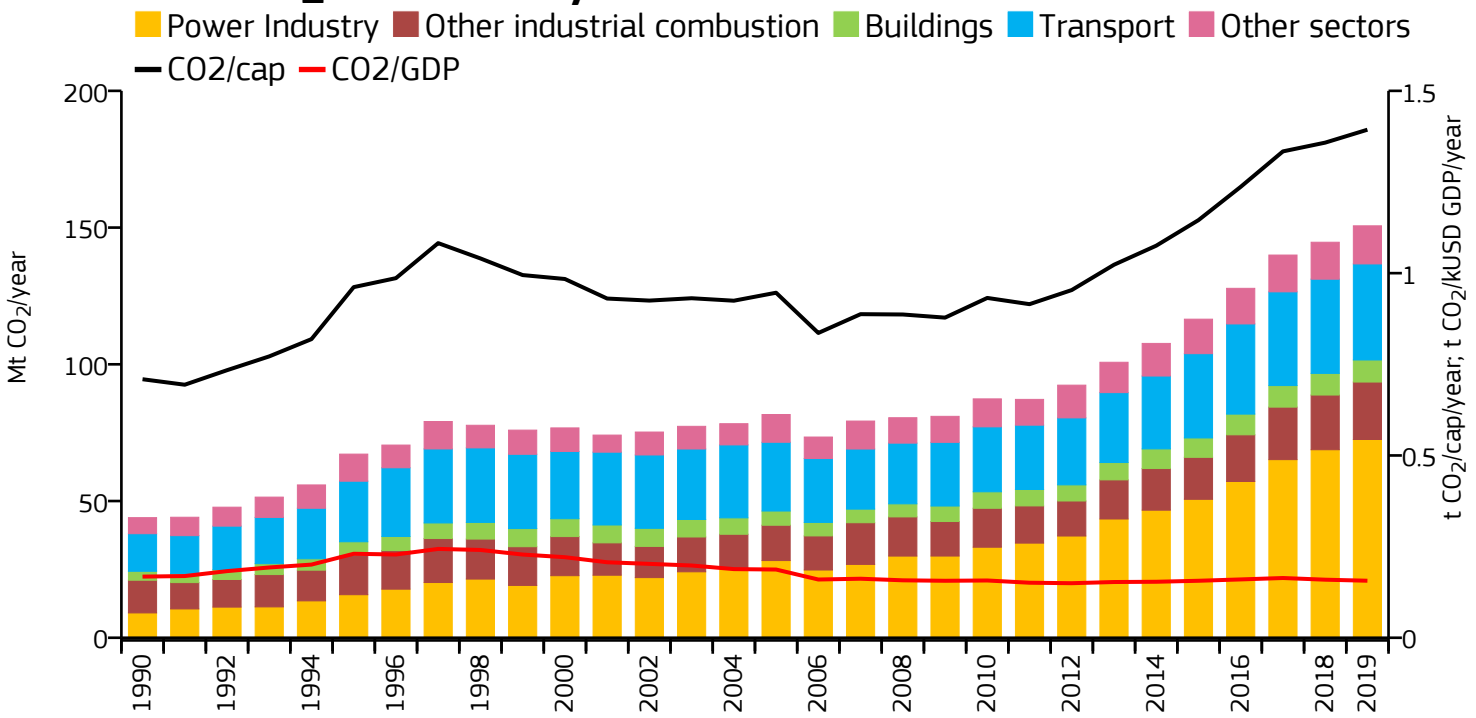
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	56.286	1.709	0.135	32.934M
2018	55.810	1.715	0.136	32.552M
2005	31.838	1.153	0.152	27.610M
1990	20.875	0.956	0.180	21.827M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+362%	+120%	+2%
Other industrial combustion	+118%	+19%	-3%
Buildings	+7%	+38%	+2%
Transport	+224%	+130%	+2%
Other sectors	+194%	+58%	+3%
All sectors	+170%	+77%	+1%

Philippines

Fossil CO_2 emissions by sector



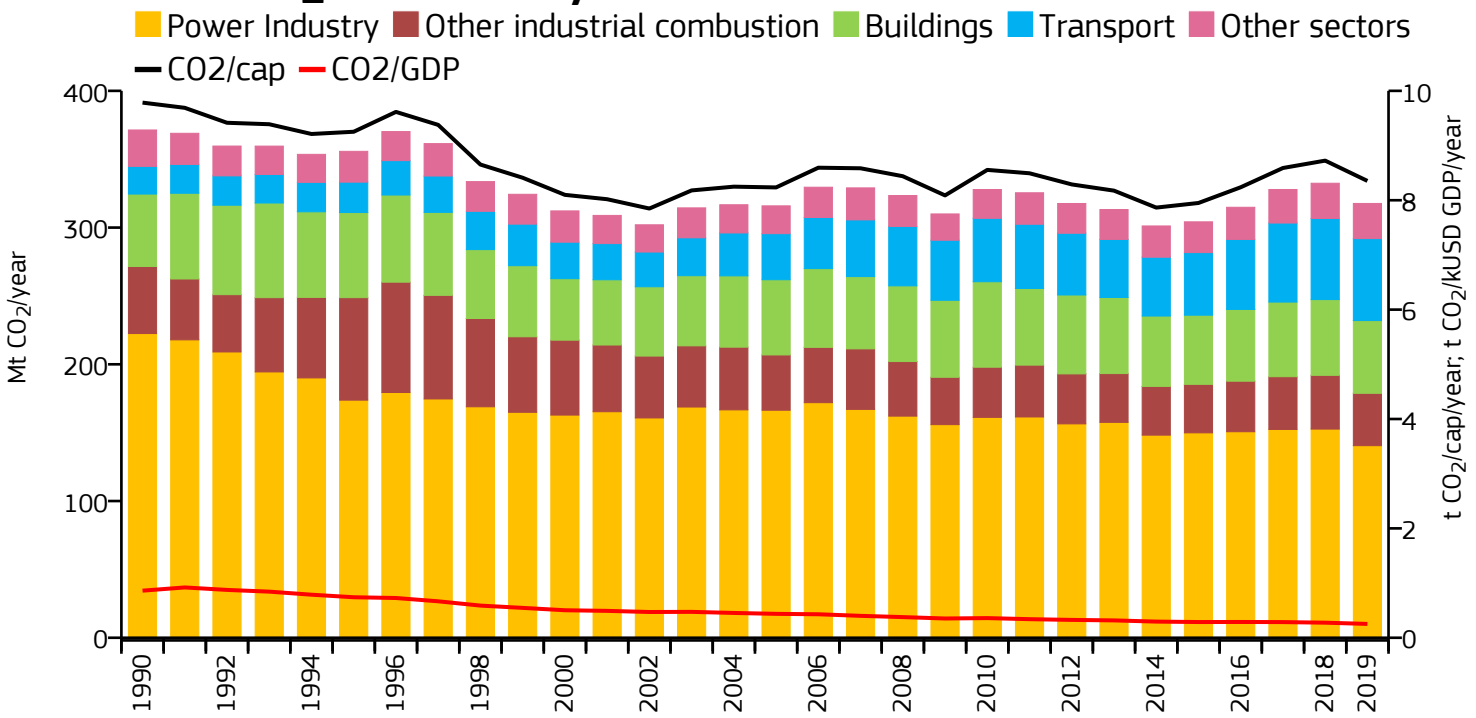
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	150.640	1.393	0.156	108.106M
2018	144.642	1.358	0.159	106.512M
2005	81.643	0.946	0.187	86.274M
1990	43.924	0.709	0.168	61.947M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+698%	+157%	+5%
Other industrial combustion	+76%	+63%	+5%
Buildings	+147%	+56%	+2%
Transport	+156%	+40%	+2%
Other sectors	+137%	+37%	+3%
All sectors	+243%	+85%	+4%

Poland

Fossil CO_2 emissions by sector



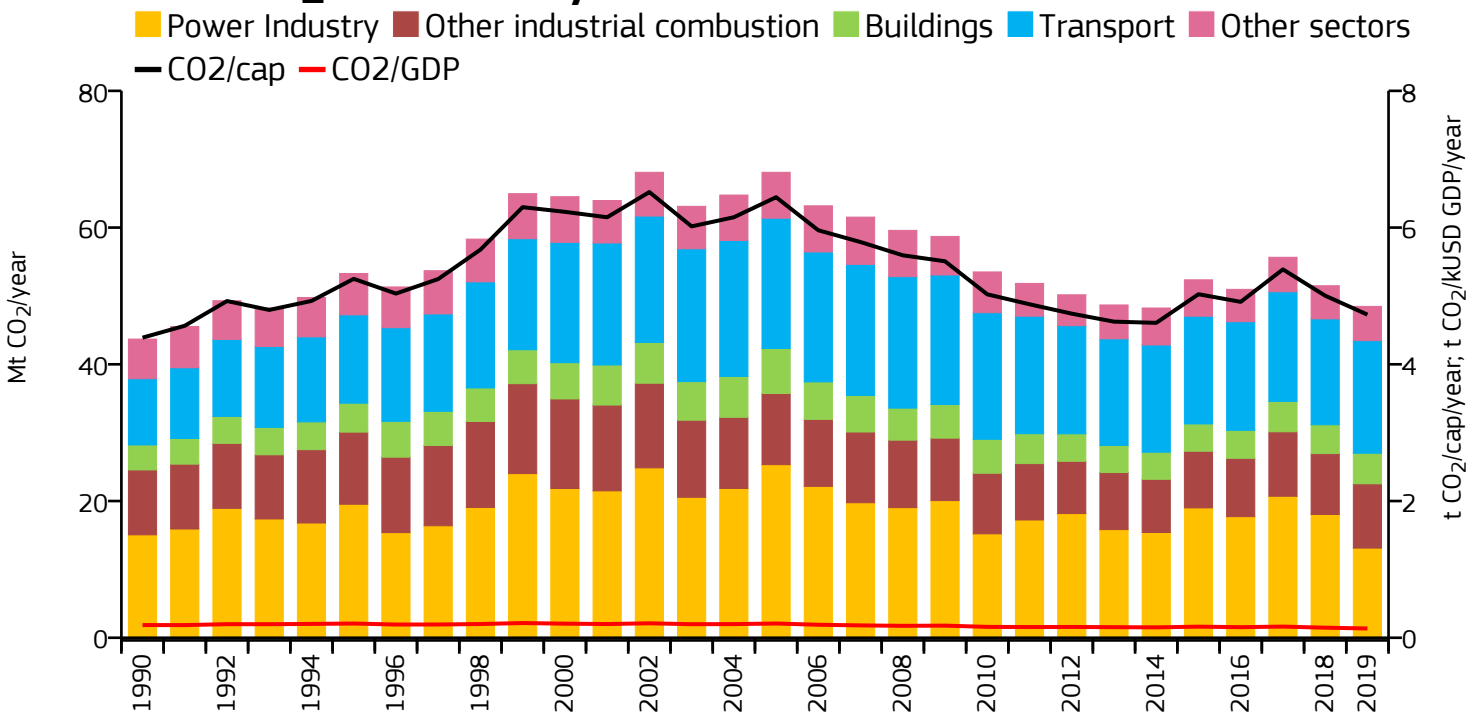
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	317.654	8.353	0.253	38.028M
2018	332.436	8.724	0.276	38.105M
2005	315.887	8.234	0.437	38.363M
1990	371.381	9.785	0.861	37.955M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-37%	-16%	-8%
Other industrial combustion	-22%	-5%	-3%
Buildings	0%	-3%	-4%
Transport	+196%	+78%	+1%
Other sectors	-3%	+26%	0%
All sectors	-14%	+1%	-4%

Portugal

Fossil CO_2 emissions by sector



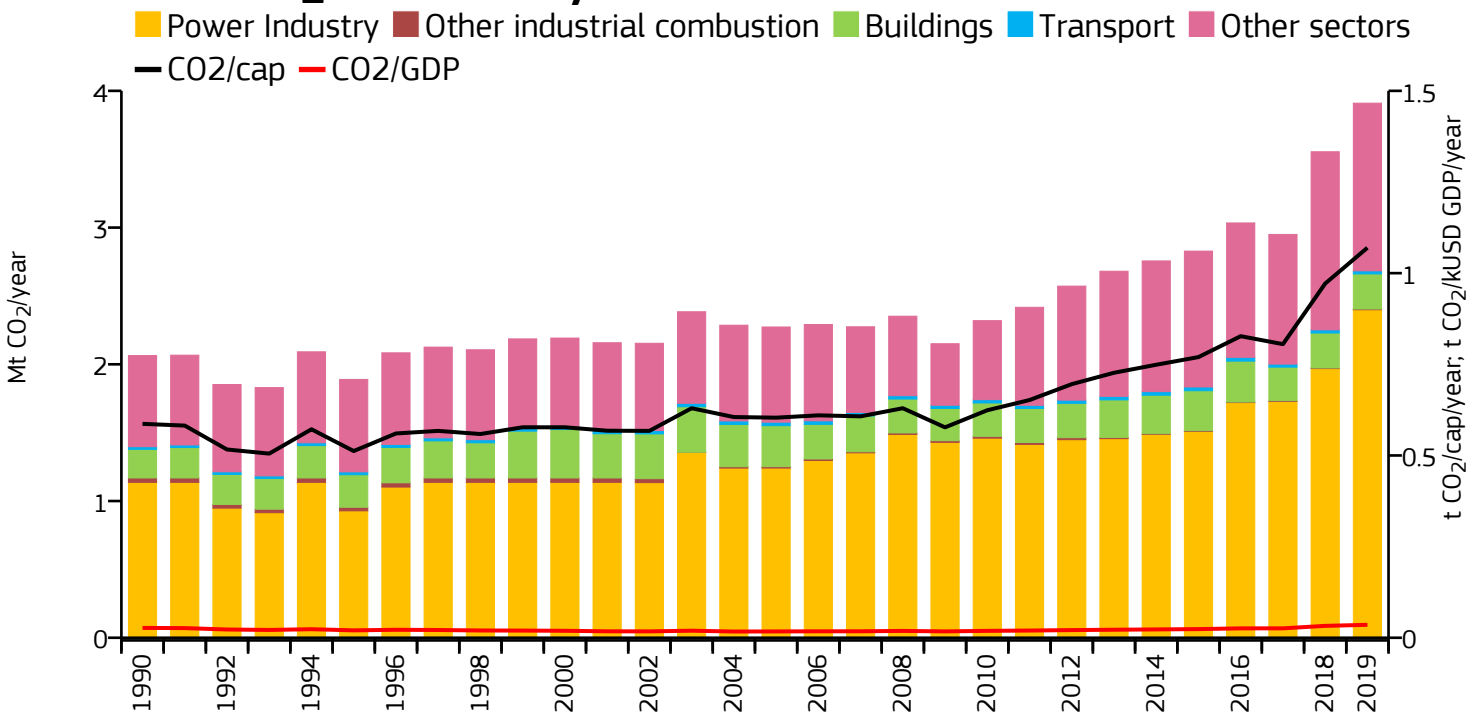
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	48.472	4.727	0.136	10.255M
2018	51.493	5.004	0.147	10.291M
2005	68.089	6.444	0.208	10.566M
1990	43.692	4.390	0.186	9.953M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-13%	-48%	-27%
Other industrial combustion	-1%	-10%	+6%
Buildings	+23%	-32%	+6%
Transport	+70%	-14%	+6%
Other sectors	-14%	-25%	+3%
All sectors	+11%	-29%	-6%

Puerto Rico

Fossil CO_2 emissions by sector

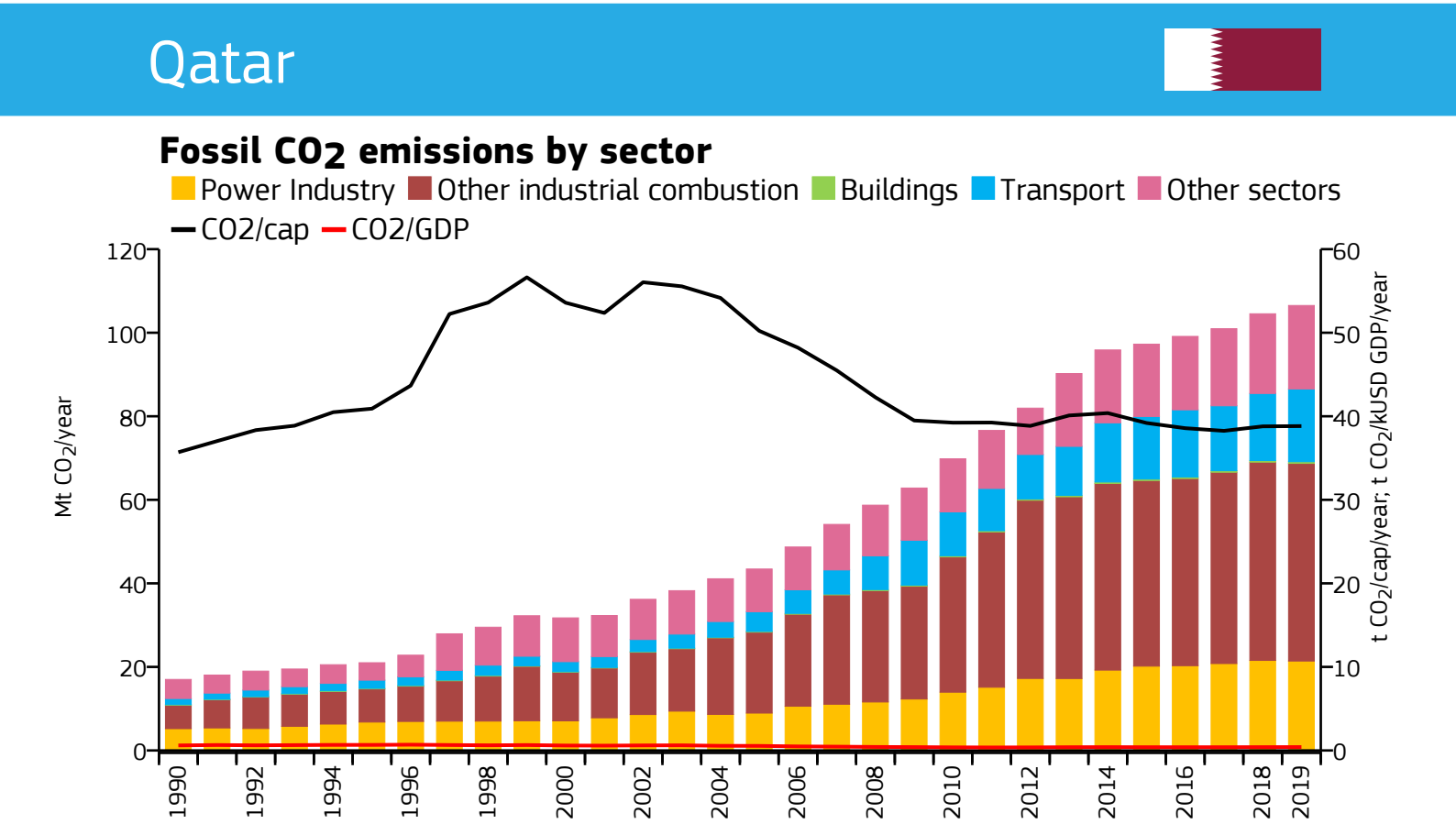


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.910	1.070	0.035	3.655M
2018	3.555	0.971	0.033	3.659M
2005	2.273	0.604	0.017	3.765M
1990	2.064	0.587	0.027	3.518M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+111%	+93%	+22%
Other industrial combustion	-84%	-48%	+22%
Buildings	+23%	-14%	0%
Transport	+17%	-13%	-3%
Other sectors	+84%	+76%	-6%
All sectors	+89%	+72%	+10%

Qatar



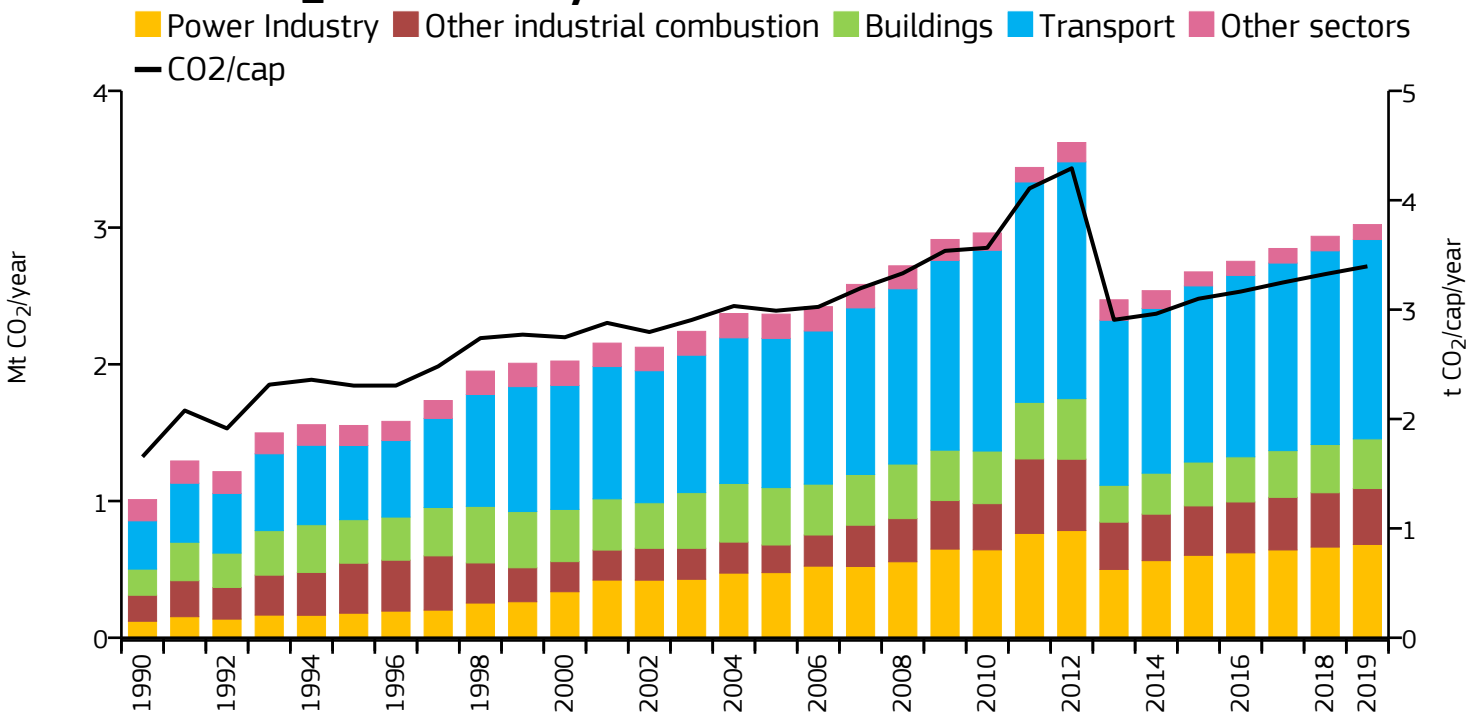
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	106.528	38.823	0.406	2.744M
2018	104.540	38.793	0.398	2.695M
2005	43.436	50.223	0.545	864.863k
1990	17.007	35.695	0.602	476.445k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+311%	+139%	-1%
Other industrial combustion	+738%	+144%	0%
Buildings	+328%	+145%	+8%
Transport	+1082%	+268%	+8%
Other sectors	+337%	+95%	+5%
All sectors	+526%	+145%	+2%

Réunion

Fossil CO_2 emissions by sector



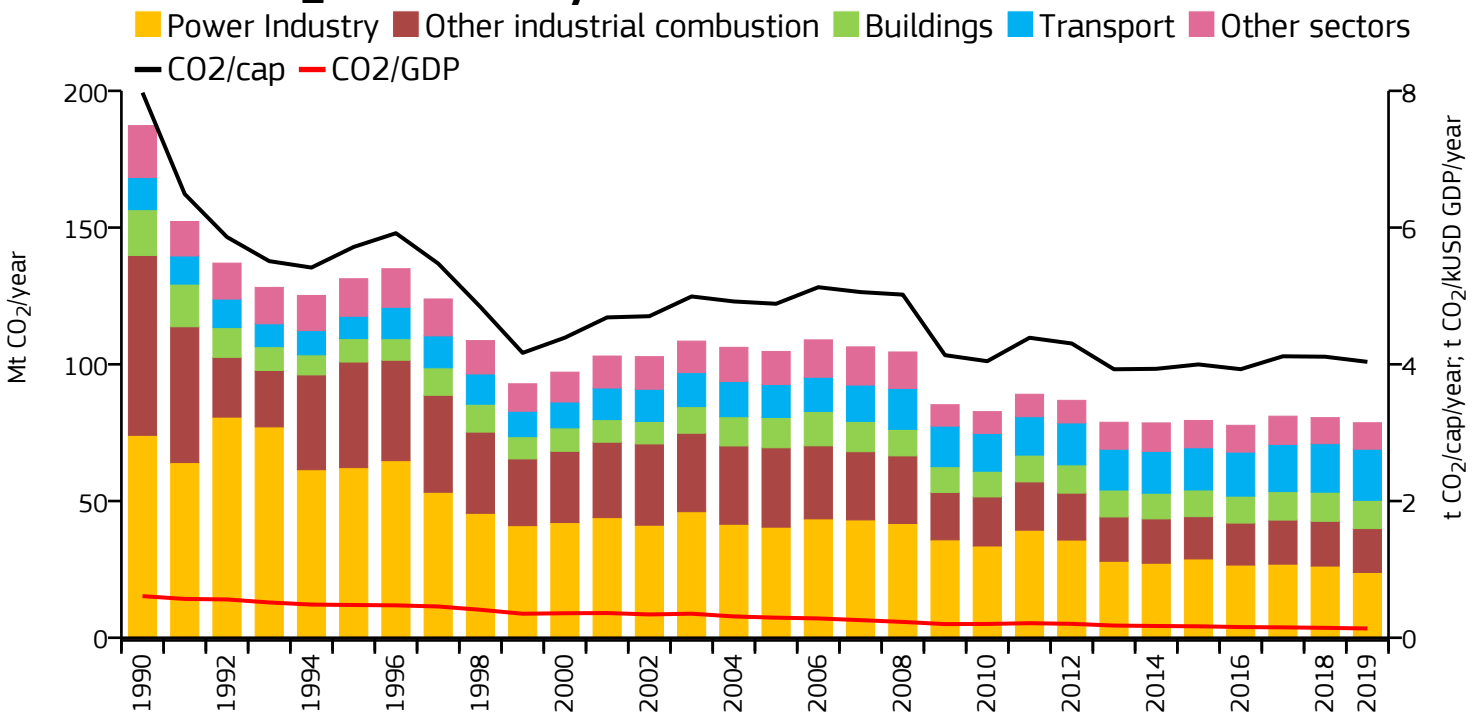
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	3.022	3.396	n/a	889.918k
2018	2.936	3.325	n/a	883.247k
2005	2.367	2.990	n/a	791.598k
1990	1.010	1.655	n/a	610.582k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+466%	+43%	+3%
Other industrial combustion	+115%	+102%	+3%
Buildings	+90%	-14%	+3%
Transport	+313%	+34%	+3%
Other sectors	-30%	-38%	+3%
All sectors	+199%	+28%	+3%

Romania

Fossil CO_2 emissions by sector



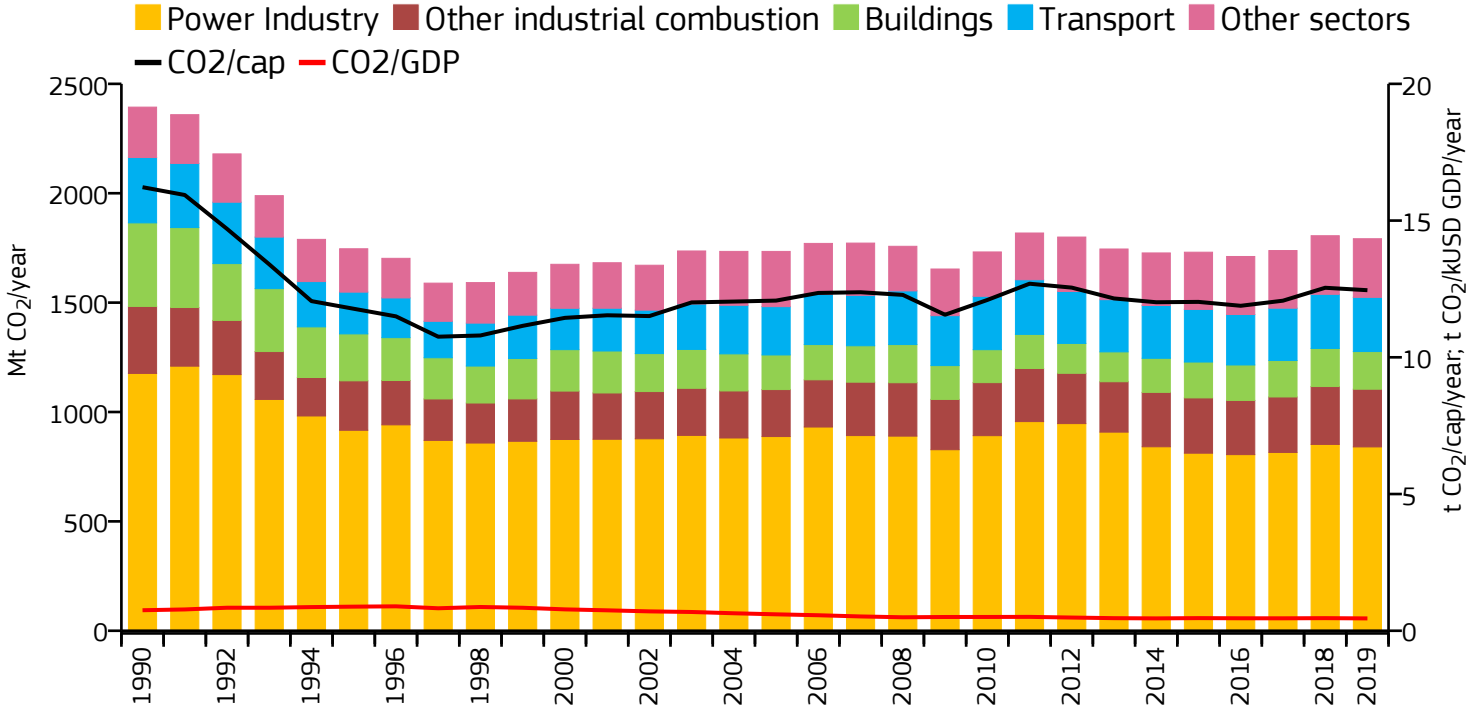
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	78.631	4.036	0.136	19.483M
2018	80.495	4.111	0.145	19.581M
2005	104.701	4.885	0.294	21.431M
1990	187.291	7.973	0.609	23.489M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-68%	↘	-41%	↘	-9%
Other industrial combustion	↘	-76%	↘	-45%	→	-2%
Buildings	↘	-38%	↘	-7%	→	-3%
Transport	↗	+59%	↗	+55%	↗	+6%
Other sectors	↘	-49%	↘	-20%	→	+2%
All sectors	↘	-58%	↘	-25%	→	-2%

Russia

Fossil CO_2 emissions by sector



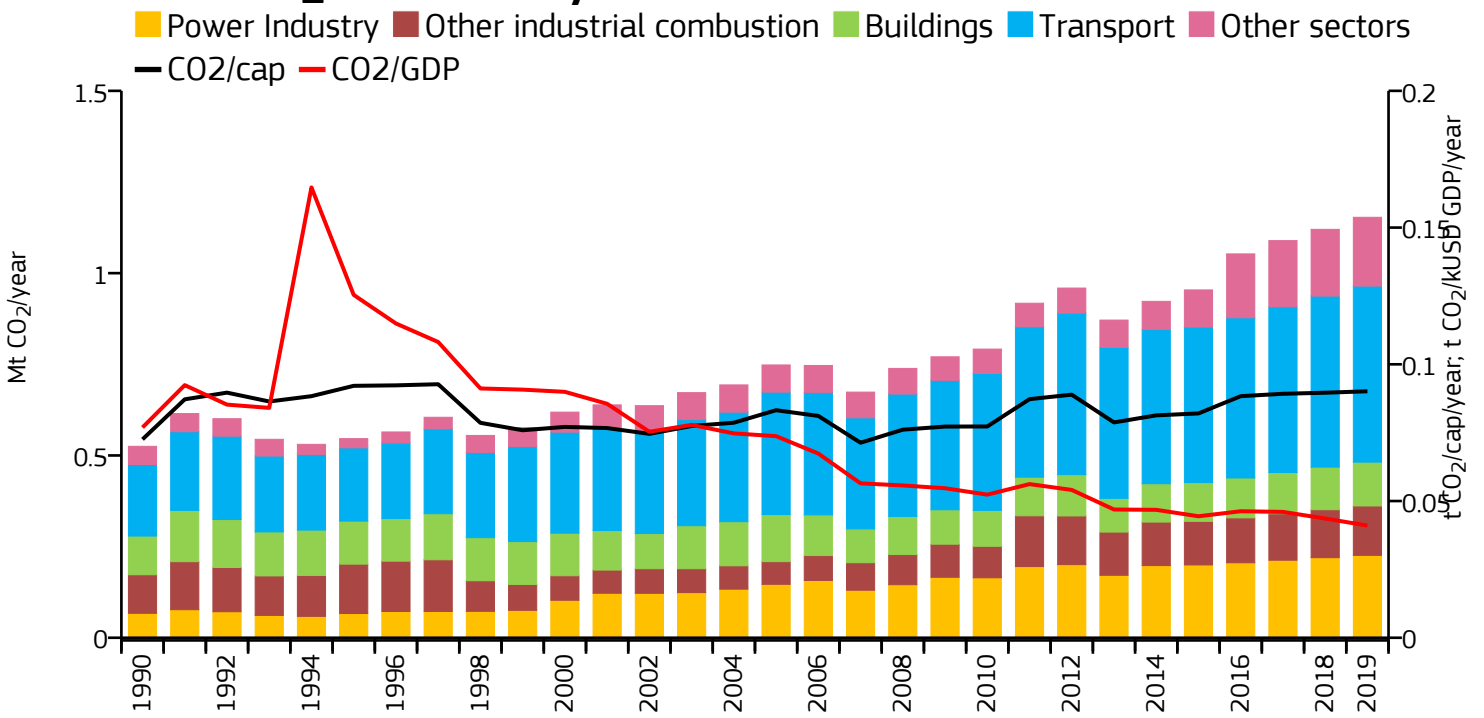
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1792.015	12.454	0.452	143.896M
2018	1805.769	12.543	0.461	143.965M
2005	1734.028	12.074	0.601	143.618M
1990	2393.658	16.221	0.751	147.564M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-29%	-5%	-1%
Other industrial combustion	-14%	+23%	0%
Buildings	-55%	+9%	-1%
Transport	-17%	+12%	0%
Other sectors	+16%	+6%	0%
All sectors	-25%	+3%	-1%

Rwanda

Fossil CO_2 emissions by sector



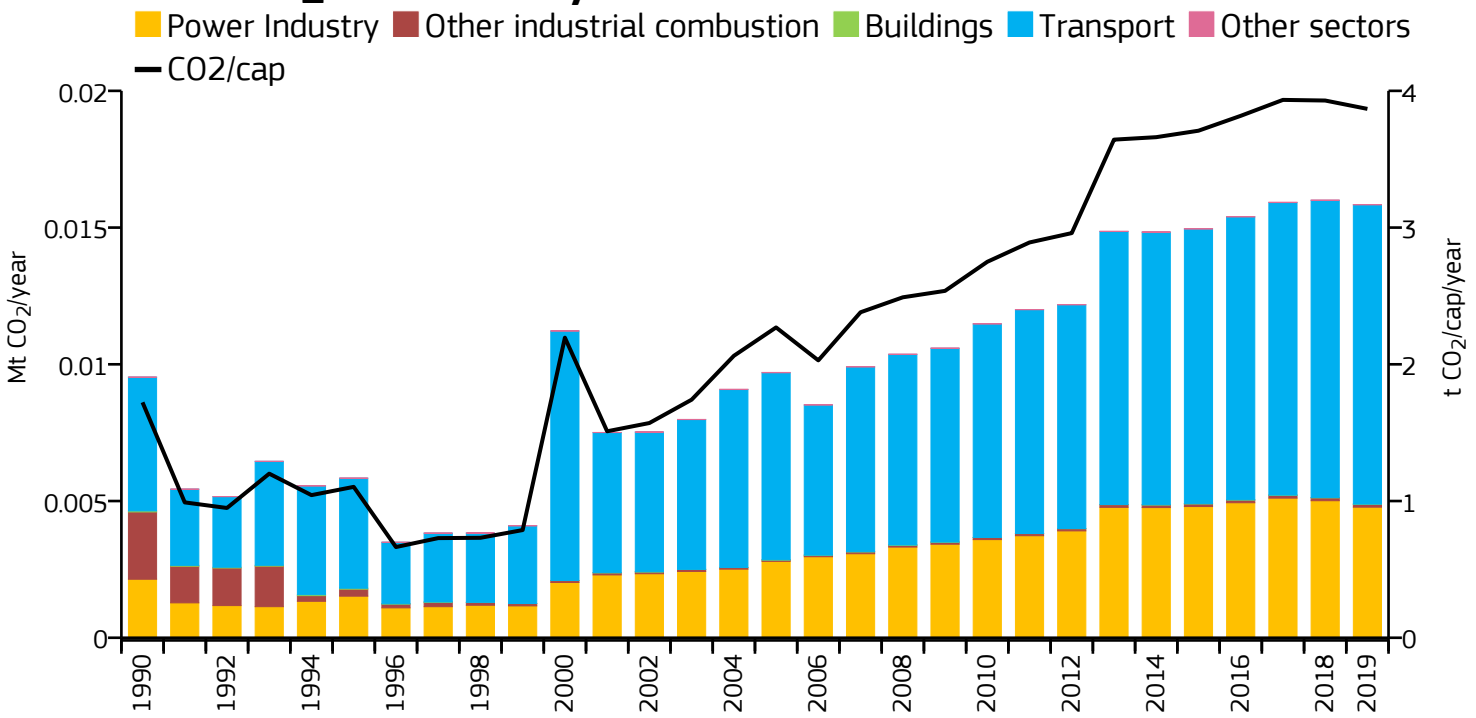
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.153	0.090	0.041	12.794M
2018	1.120	0.090	0.044	12.501M
2005	0.748	0.083	0.074	8.992M
1990	0.525	0.073	0.077	7.236M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+237%	+54%	+3%
Other industrial combustion	+28%	+118%	+3%
Buildings	+13%	-7%	+3%
Transport	+146%	+44%	+3%
Other sectors	+278%	+153%	+3%
All sectors	+120%	+54%	+3%

Saint Helena, Ascension and Tristan

Fossil CO_2 emissions by sector

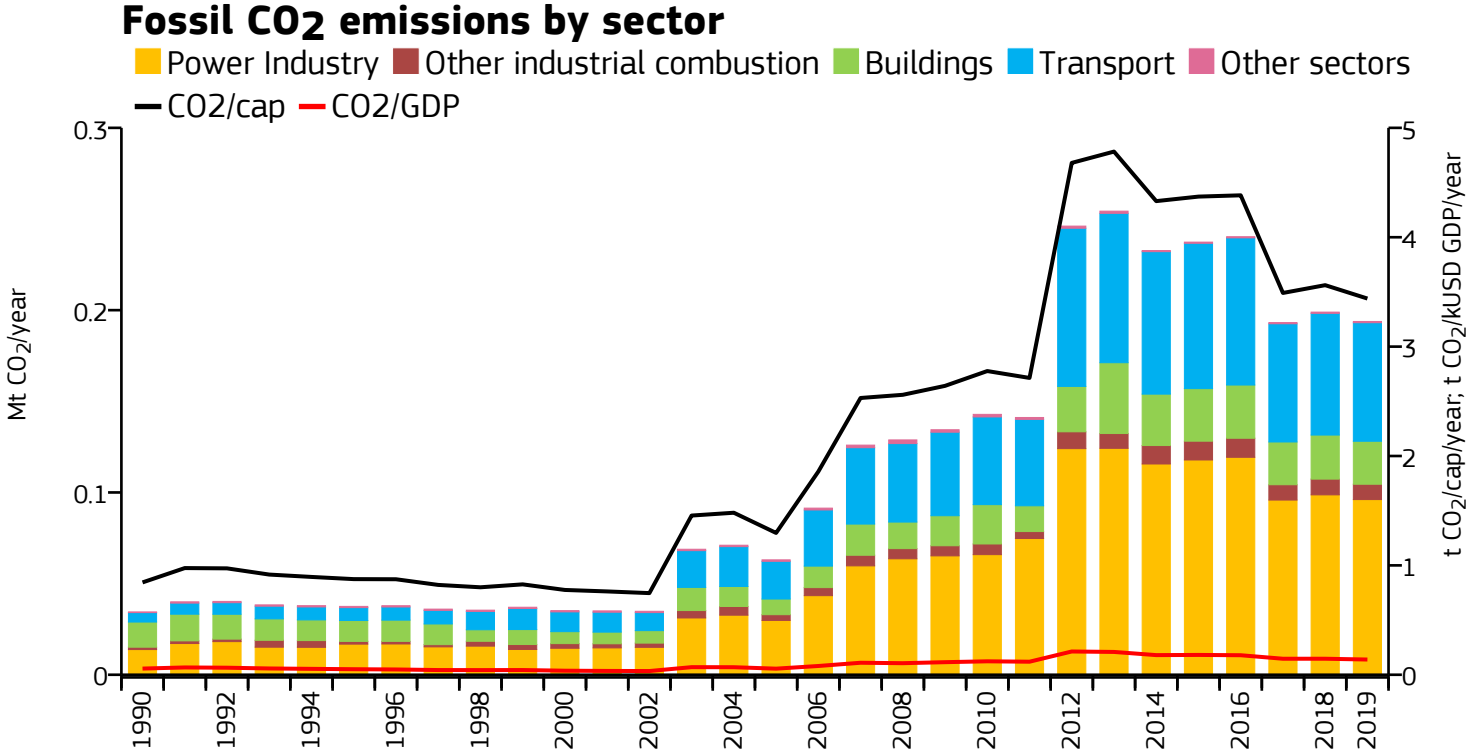


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.016	3.868	n/a	4.096k
2018	0.016	3.929	n/a	4.074k
2005	0.010	2.270	n/a	4.275k
1990	0.010	1.722	n/a	5.535k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+123%	+71%	-5%
Other industrial combustion	-96%	+110%	0%
Buildings	-92%	+14%	0%
Transport	+124%	+60%	+1%
Other sectors	+4753%	+10%	+4%
All sectors	+66%	+63%	-1%

Saint Kitts and Nevis



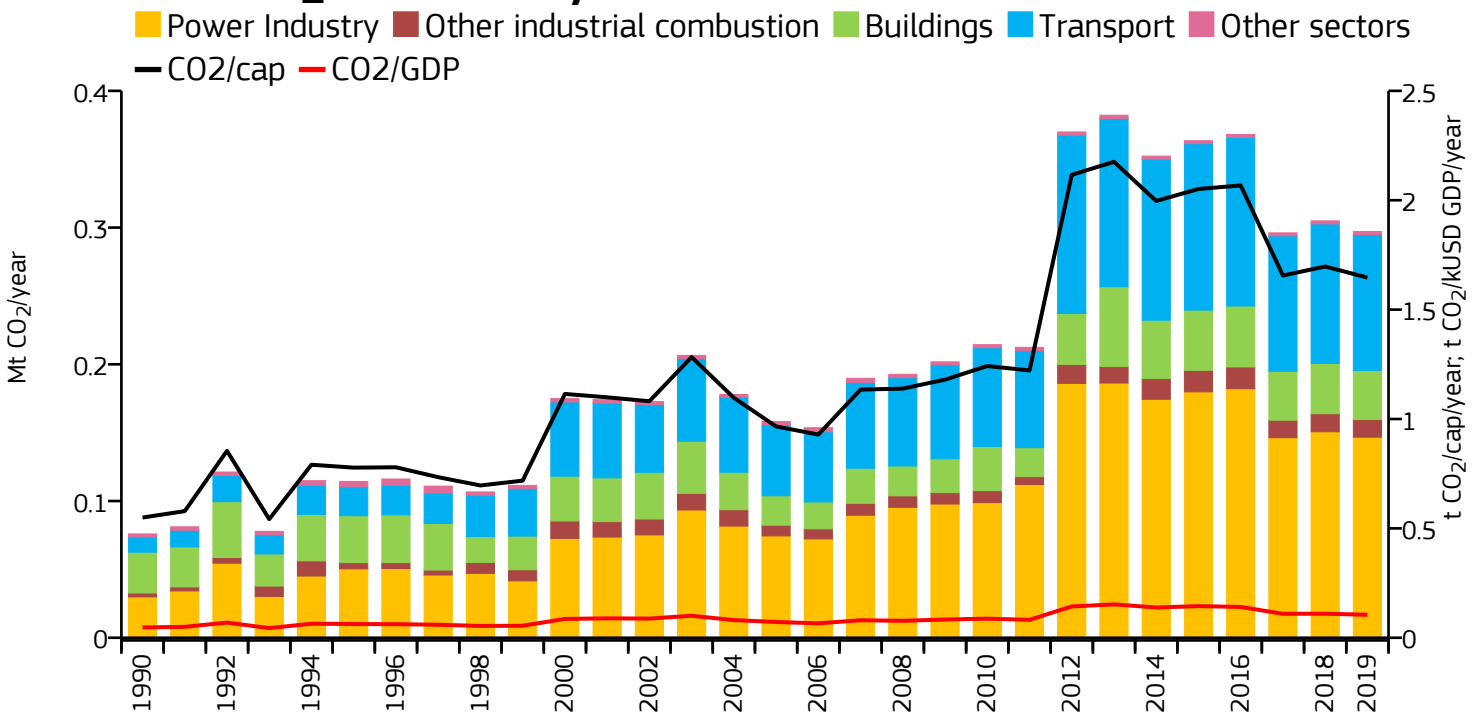
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.194	3.439	0.139	56.345k
2018	0.199	3.562	0.146	55.850k
2005	0.063	1.297	0.056	48.611k
1990	0.034	0.844	0.056	40.834k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+596%	+223%	-3%
Other industrial combustion	+539%	+168%	-3%
Buildings	+71%	+174%	-2%
Transport	+1155%	+214%	-3%
Other sectors	+80%	-15%	+2%
All sectors	+462%	+207%	-3%

Saint Lucia

Fossil CO_2 emissions by sector



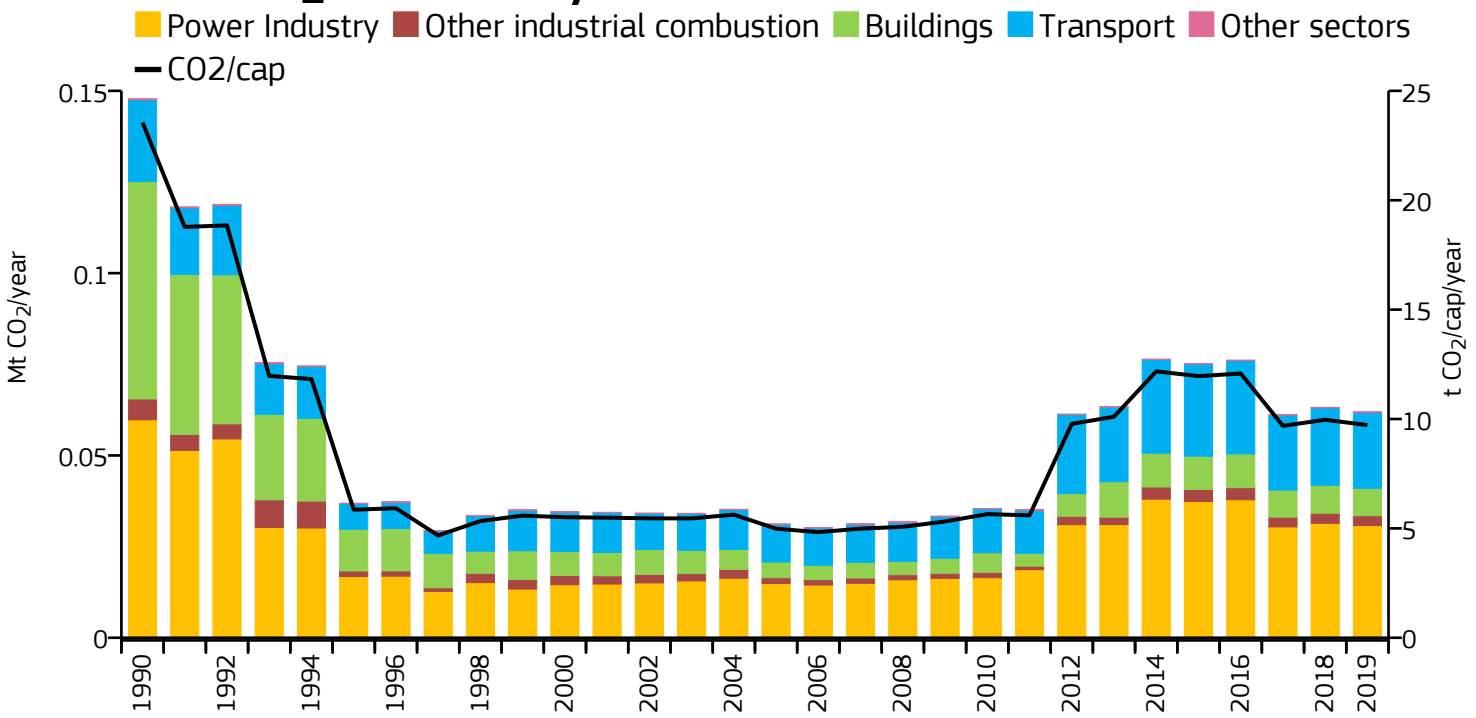
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.297	1.646	0.105	180.454k
2018	0.305	1.697	0.110	179.667k
2005	0.158	0.966	0.072	163.714k
1990	0.076	0.549	0.047	138.185k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+391%	+97%	-3%
Other industrial combustion	+351%	+64%	-3%
Buildings	+21%	+67%	-2%
Transport	+785%	+92%	-3%
Other sectors	+4%	-13%	+1%
All sectors	+291%	+88%	-3%

Saint Pierre and Miquelon

Fossil CO_2 emissions by sector



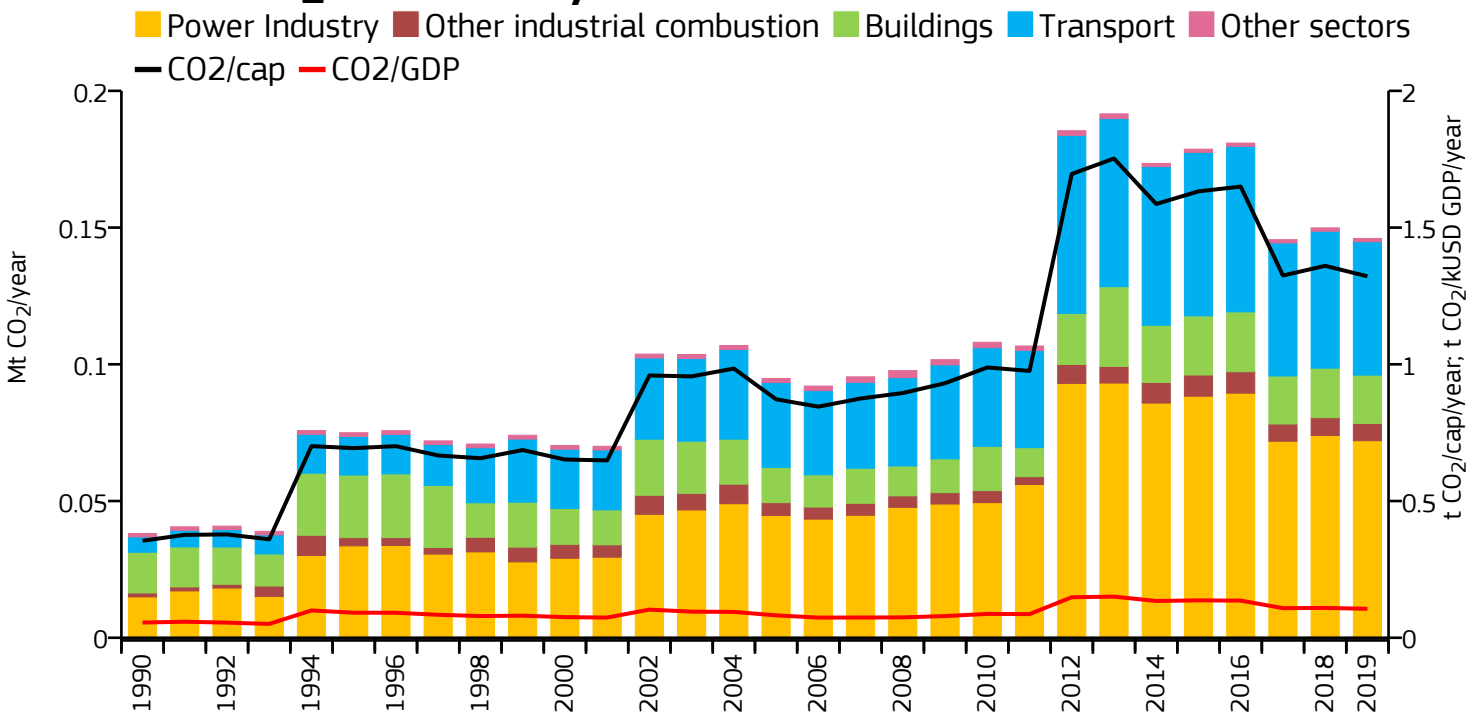
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.062	9.721	n/a	6.375k
2018	0.063	9.965	n/a	6.342k
2005	0.031	4.985	n/a	6.261k
1990	0.148	23.556	n/a	6.276k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-49%	+107%	-2%
Other industrial combustion	-53%	+72%	-2%
Buildings	-87%	+75%	-2%
Transport	-7%	+101%	-2%
Other sectors	-46%	+65%	+5%
All sectors	-58%	+99%	-2%

Saint Vincent and the Grenadines

Fossil CO_2 emissions by sector

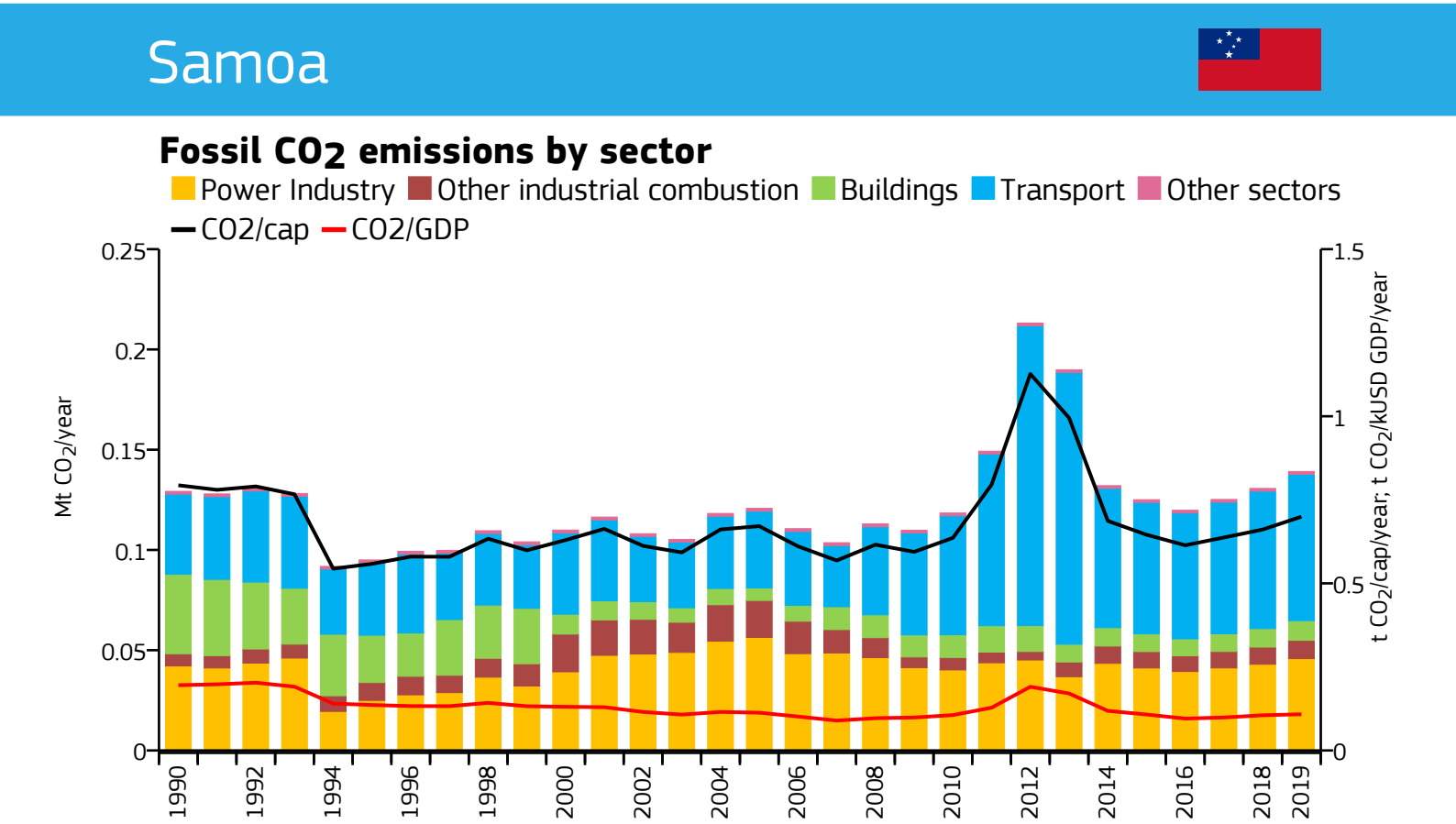


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.146	1.322	0.106	110.488k
2018	0.150	1.360	0.109	110.200k
2005	0.095	0.872	0.082	108.744k
1990	0.038	0.355	0.056	107.505k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+382%	+61%	-3%
Other industrial combustion	+343%	+34%	-3%
Buildings	+19%	+37%	-2%
Transport	+770%	+57%	-3%
Other sectors	-1%	-17%	+1%
All sectors	+283%	+54%	-3%

Samoa



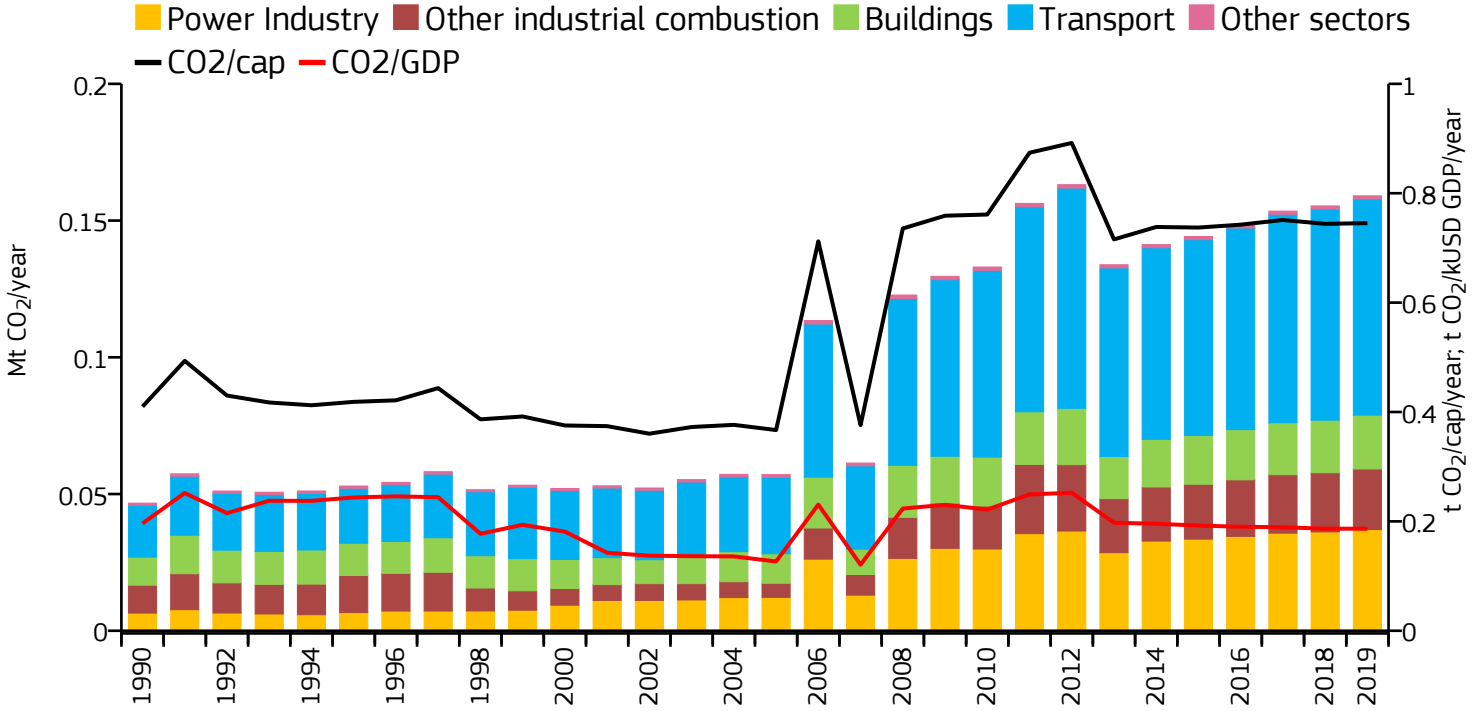
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.139	0.699	0.108	198.909k
2018	0.131	0.661	0.105	197.695k
2005	0.121	0.671	0.113	179.929k
1990	0.129	0.794	0.195	162.866k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+9%	-19%	+7%
Other industrial combustion	+49%	-51%	+7%
Buildings	-75%	+58%	+7%
Transport	+82%	+91%	+7%
Other sectors	+2%	-6%	0%
All sectors	+8%	+15%	+6%

São Tomé and Príncipe

Fossil CO_2 emissions by sector



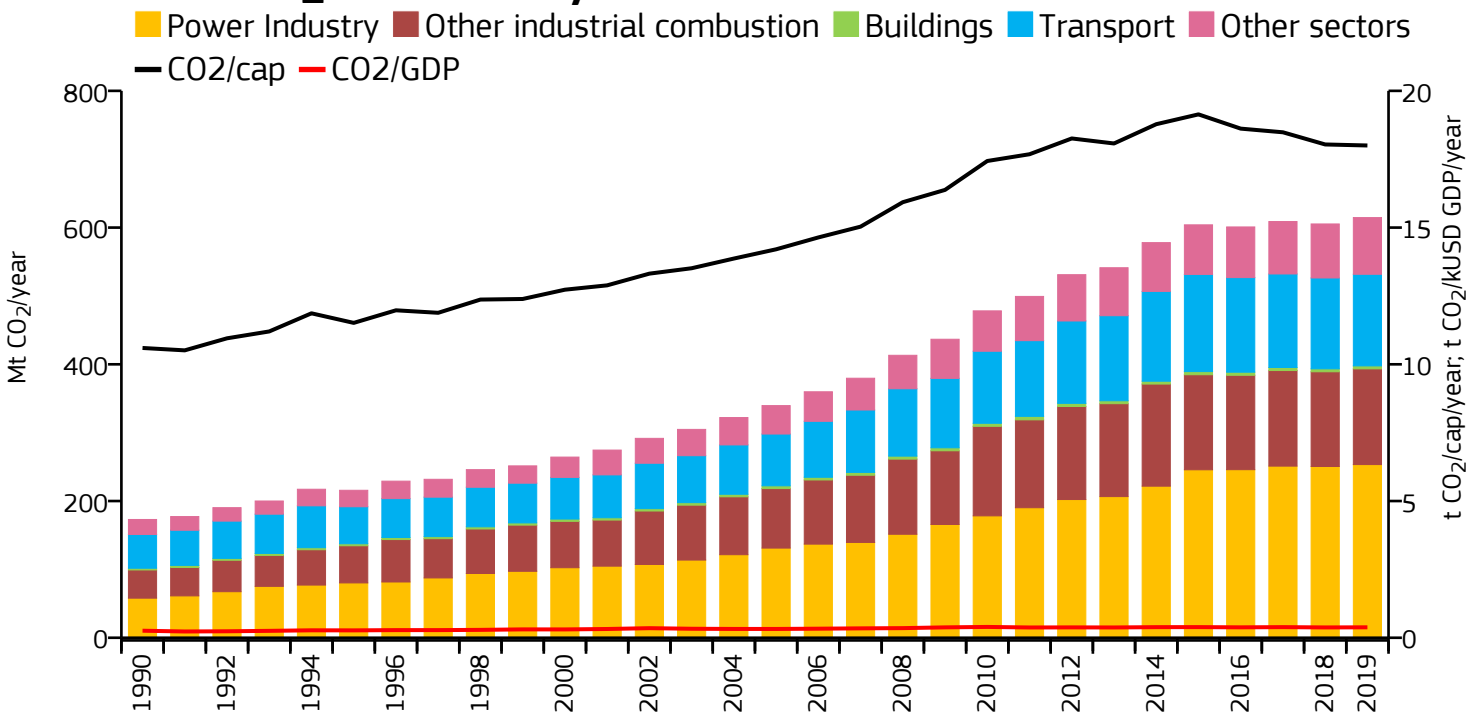
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.159	0.745	0.187	213.379k
2018	0.155	0.744	0.187	208.818k
2005	0.057	0.367	0.127	155.630k
1990	0.047	0.410	0.196	113.893k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+471%	+203%	+2%
Other industrial combustion	+117%	+328%	+2%
Buildings	+92%	+83%	+2%
Transport	+317%	+182%	+2%
Other sectors	+45%	+19%	0%
All sectors	+241%	+178%	+2%

Saudi Arabia

Fossil CO_2 emissions by sector



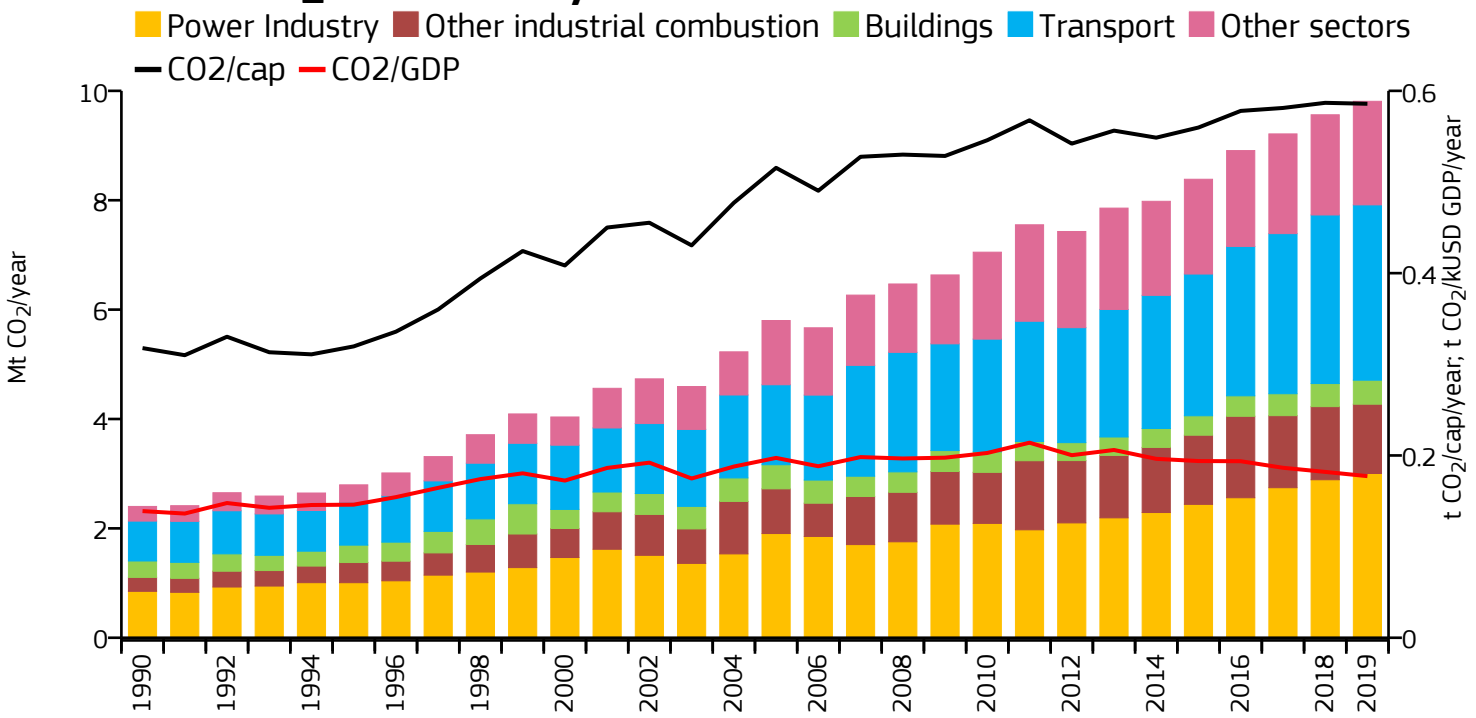
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	614.607	18.002	0.382	34.141M
2018	605.307	18.040	0.377	33.554M
2005	339.590	14.205	0.322	23.906M
1990	173.022	10.597	0.257	16.327M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+337%	+93%	+1%
Other industrial combustion	+240%	+61%	+1%
Buildings	+72%	+8%	+1%
Transport	+171%	+77%	+1%
Other sectors	+278%	+99%	+5%
All sectors	+255%	+81%	+2%

Senegal

Fossil CO_2 emissions by sector



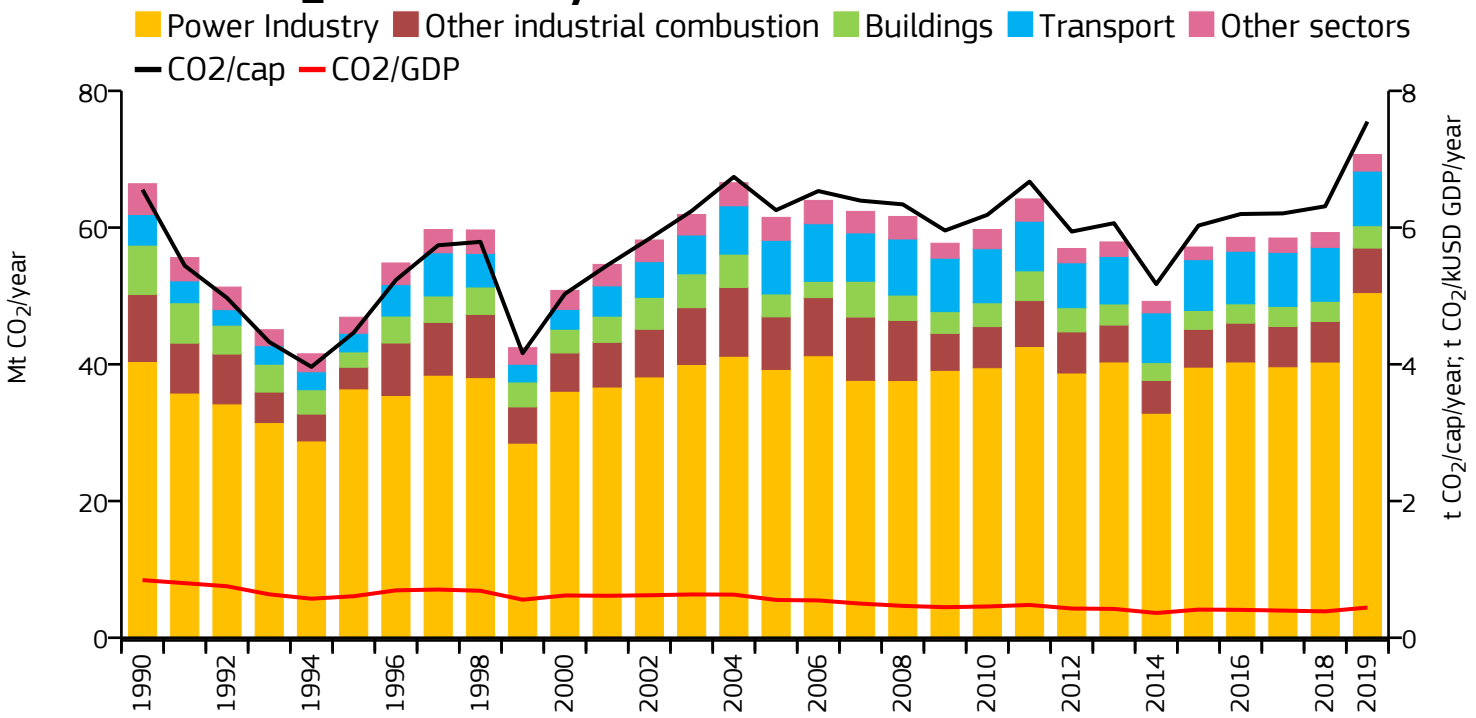
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	9.809	0.586	0.177	16.744M
2018	9.563	0.587	0.182	16.294M
2005	5.801	0.516	0.197	11.251M
1990	2.401	0.318	0.139	7.556M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+254%	+58%	+4%
Other industrial combustion	+398%	+55%	-5%
Buildings	+46%	0%	+4%
Transport	+339%	+119%	+4%
Other sectors	+607%	+61%	+3%
All sectors	+309%	+69%	+3%

Serbia and Montenegro

Fossil CO_2 emissions by sector



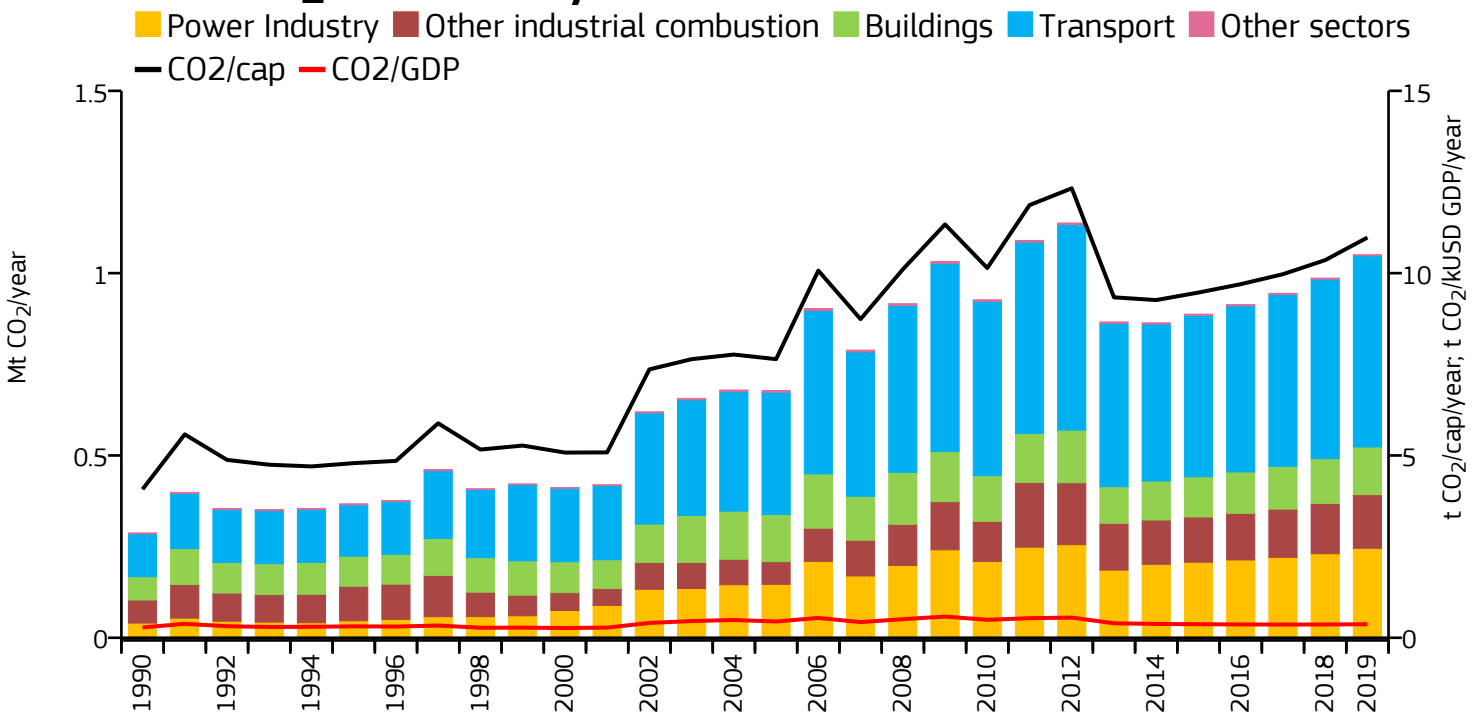
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	70.688	7.550	0.442	9.363M
2018	59.270	6.311	0.386	9.391M
2005	61.495	6.255	0.553	9.831M
1990	66.412	6.554	0.843	10.133M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+25%	+29%	+25%
Other industrial combustion	-34%	-15%	+10%
Buildings	-55%	-2%	+11%
Transport	+79%	+2%	+1%
Other sectors	-46%	-28%	+12%
All sectors	+6%	+15%	+19%

Seychelles

Fossil CO_2 emissions by sector

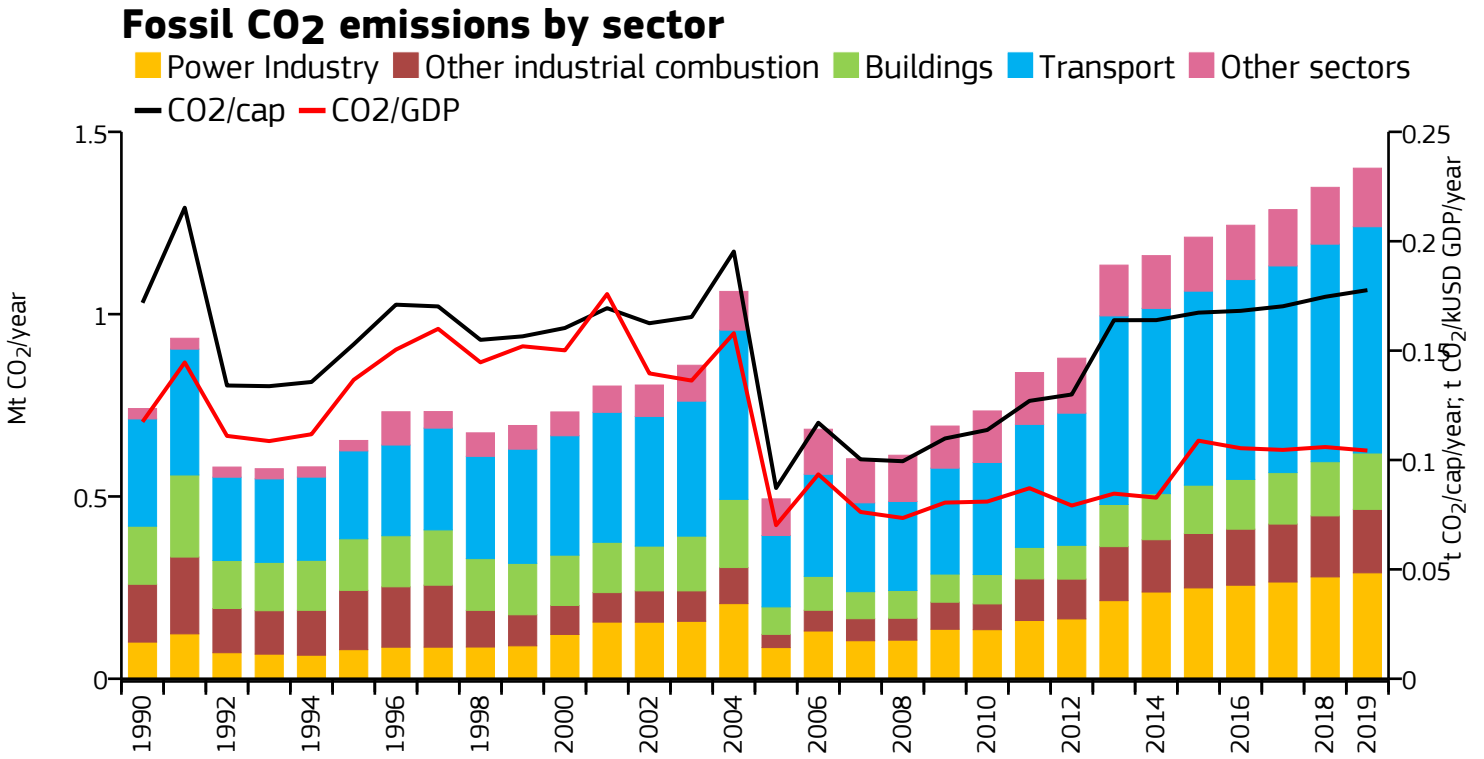


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.051	10.977	0.370	95.702k
2018	0.986	10.357	0.364	95.235k
2005	0.678	7.641	0.446	88.744k
1990	0.288	4.072	0.282	70.624k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+510%	+68%	+7%
Other industrial combustion	+132%	+137%	+7%
Buildings	+105%	+1%	+7%
Transport	+346%	+56%	+7%
Other sectors	+11%	-38%	-5%
All sectors	+265%	+55%	+7%

Sierra Leone



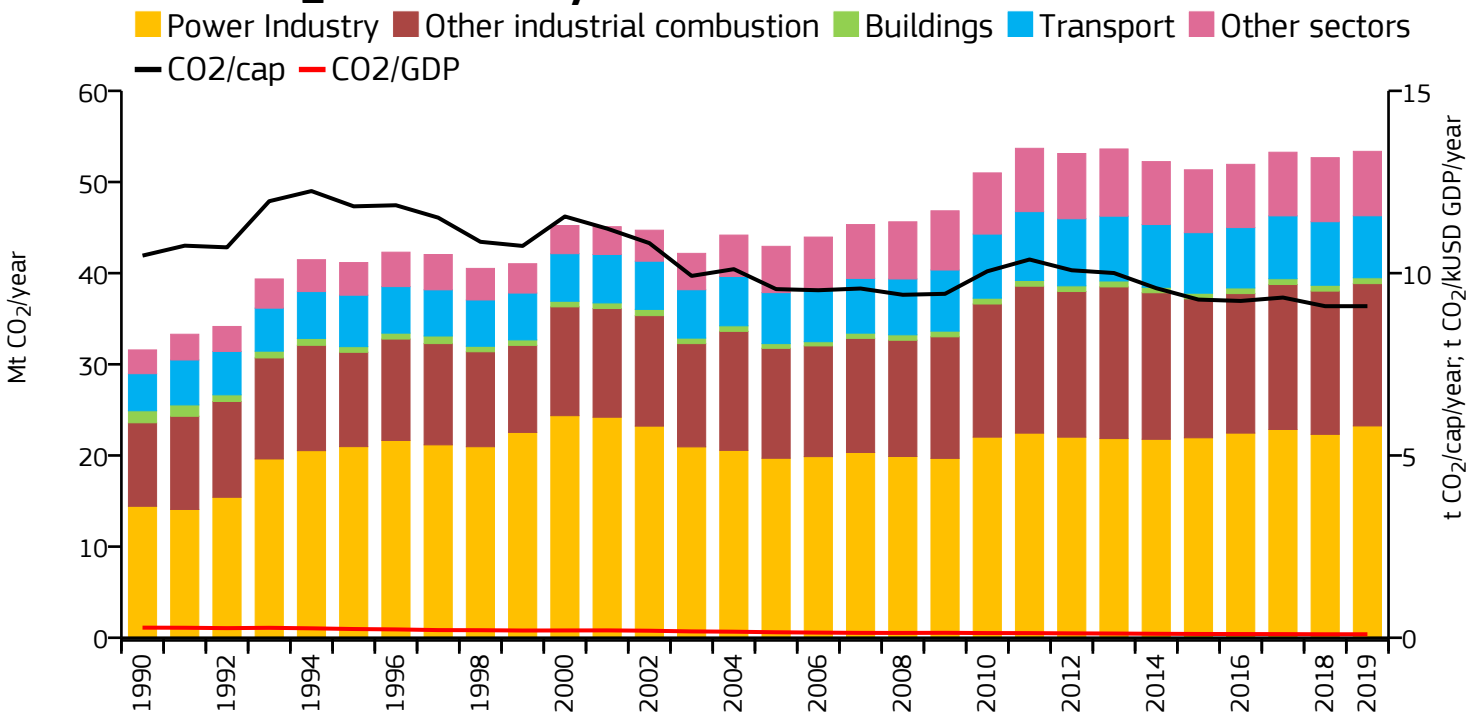
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	1.400	0.178	0.104	7.883M
2018	1.348	0.175	0.106	7.720M
2005	0.493	0.087	0.070	5.658M
1990	0.741	0.172	0.117	4.312M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+189%	+240%	+4%
Other industrial combustion	+10%	+380%	+4%
Buildings	-3%	+105%	+4%
Transport	+111%	+217%	+4%
Other sectors	+465%	+60%	+3%
All sectors	+89%	+184%	+4%

Singapore

Fossil CO_2 emissions by sector

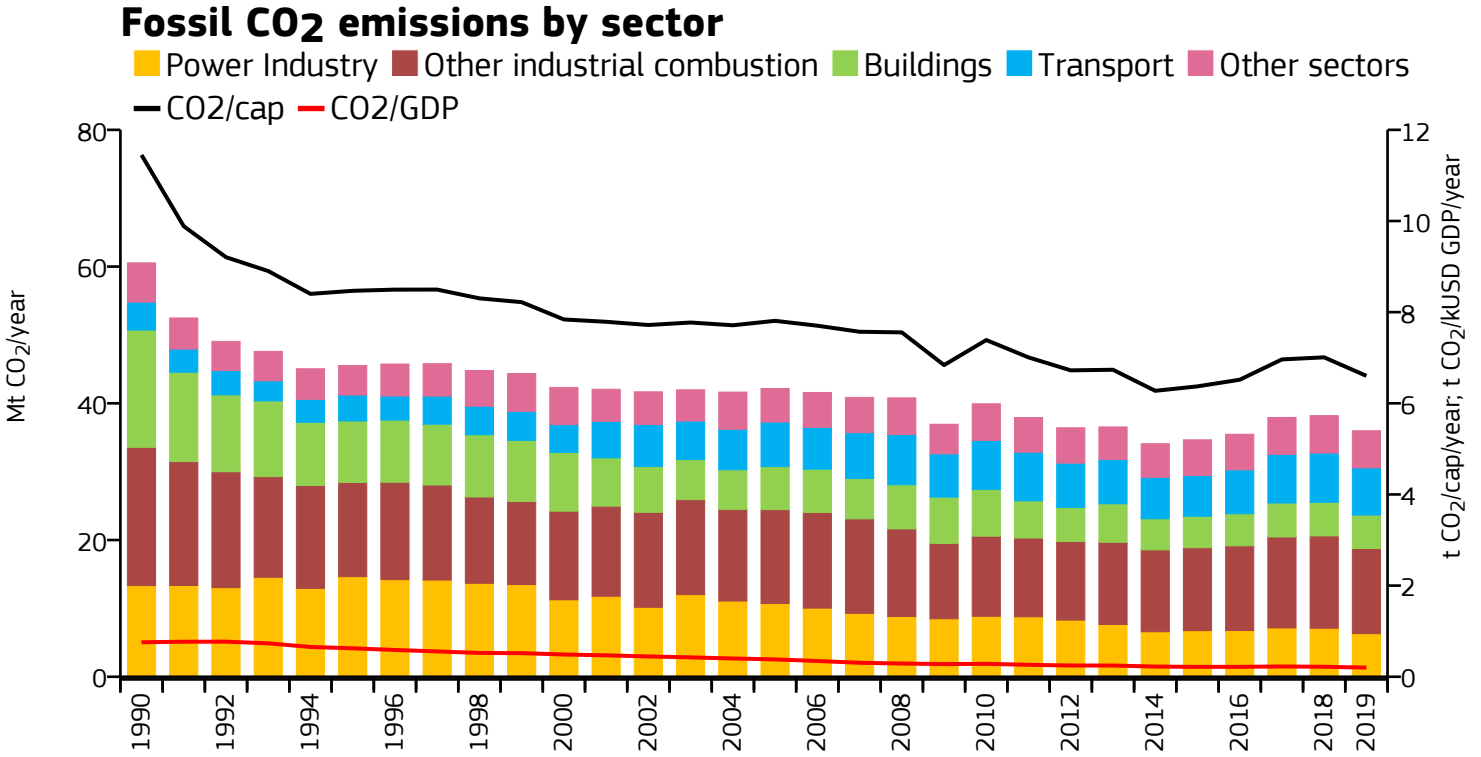


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	53.365	9.094	0.096	5.868M
2018	52.670	9.094	0.096	5.792M
2005	42.944	9.562	0.150	4.491M
1990	31.579	10.481	0.277	3.013M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+61%	+18%	+4%
Other industrial combustion	+70%	+29%	-1%
Buildings	-51%	+25%	+1%
Transport	+67%	+22%	-2%
Other sectors	+171%	+39%	+1%
All sectors	+69%	+24%	+1%

Slovakia



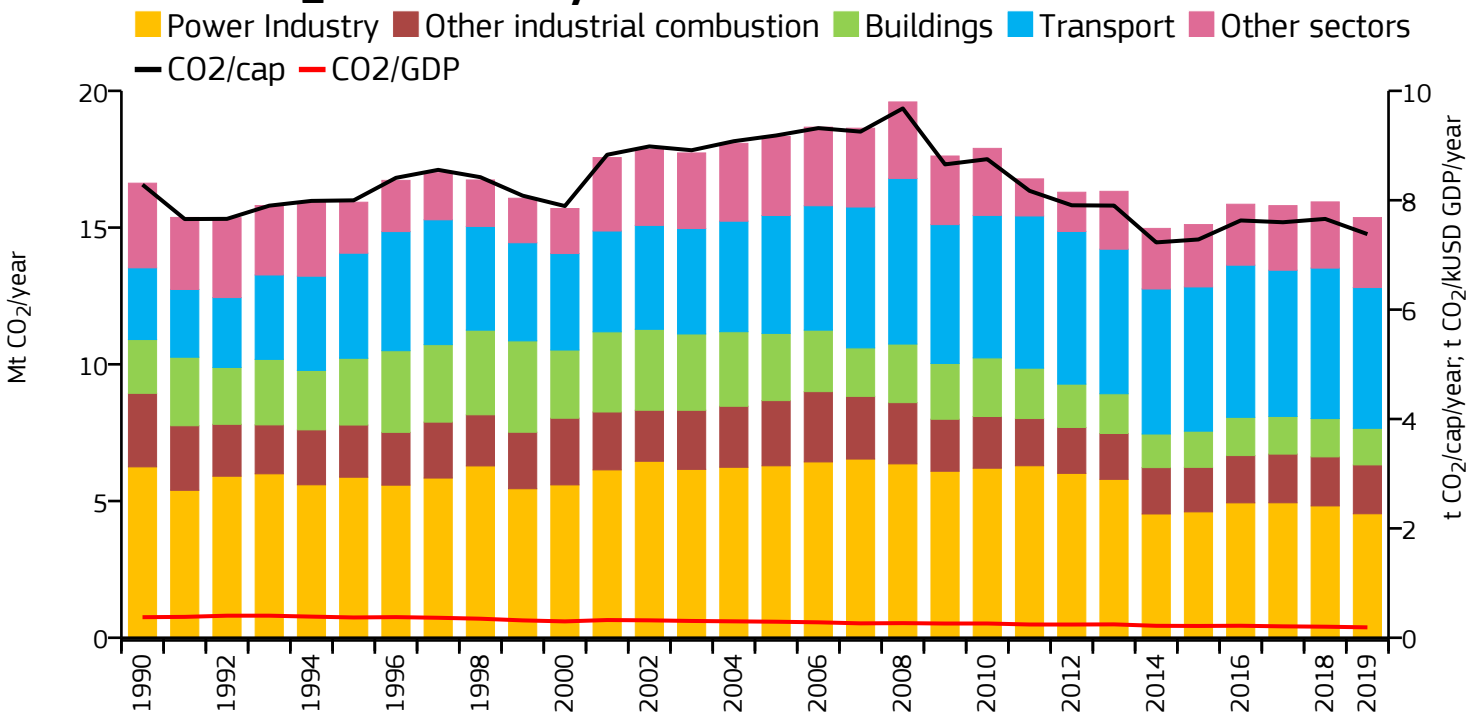
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	35.985	6.602	0.201	5.451M
2018	38.196	7.009	0.219	5.450M
2005	42.164	7.810	0.381	5.399M
1990	60.545	11.449	0.757	5.288M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-53%	-41%	-11%
Other industrial combustion	-38%	-9%	-8%
Buildings	-71%	-22%	0%
Transport	+69%	+6%	-4%
Other sectors	-5%	+11%	-1%
All sectors	-41%	-15%	-6%

Slovenia

Fossil CO_2 emissions by sector



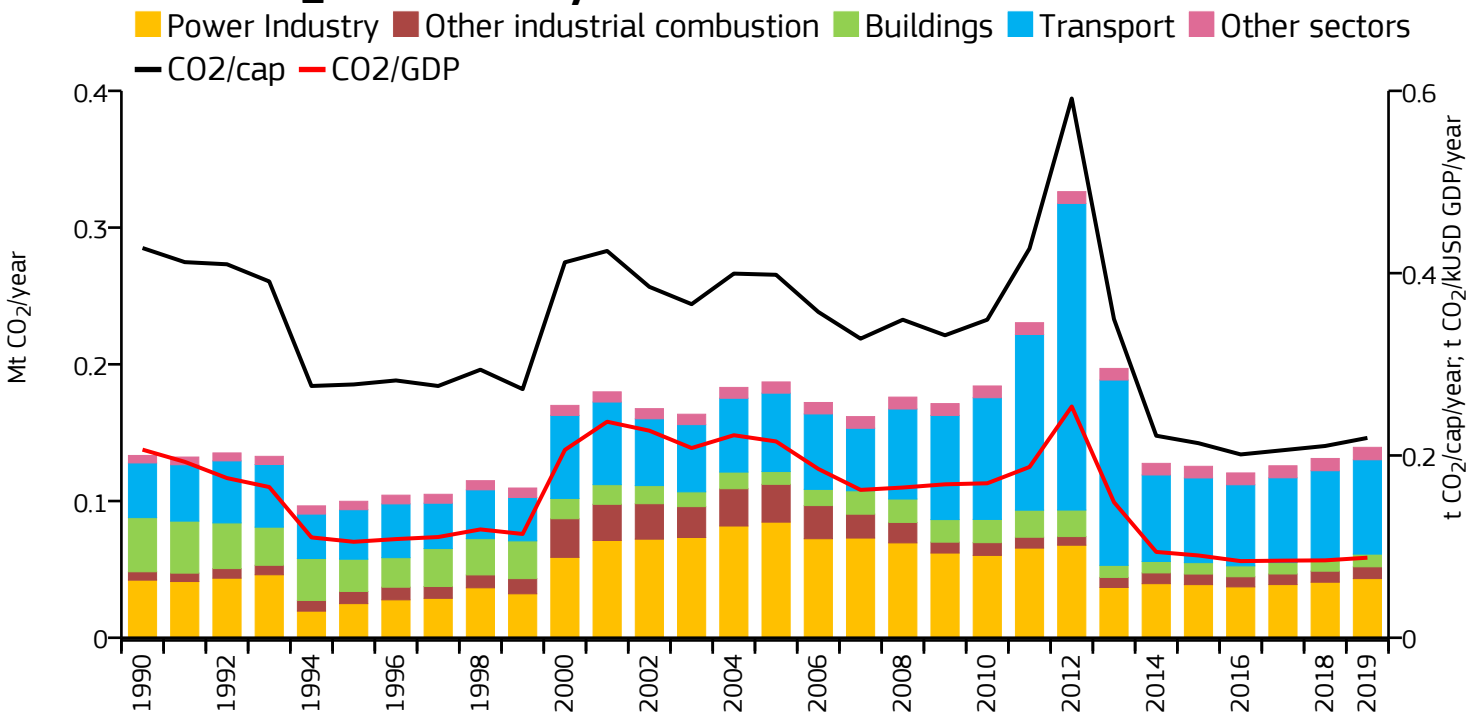
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	15.365	7.380	0.190	2.082M
2018	15.939	7.658	0.202	2.081M
2005	18.334	9.184	0.293	1.996M
1990	16.624	8.285	0.376	2.006M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-27%	-28%	-6%
Other industrial combustion	-34%	-25%	0%
Buildings	-32%	-46%	-5%
Transport	+96%	+19%	-6%
Other sectors	-17%	-12%	+6%
All sectors	-8%	-16%	-4%

Solomon Islands

Fossil CO_2 emissions by sector



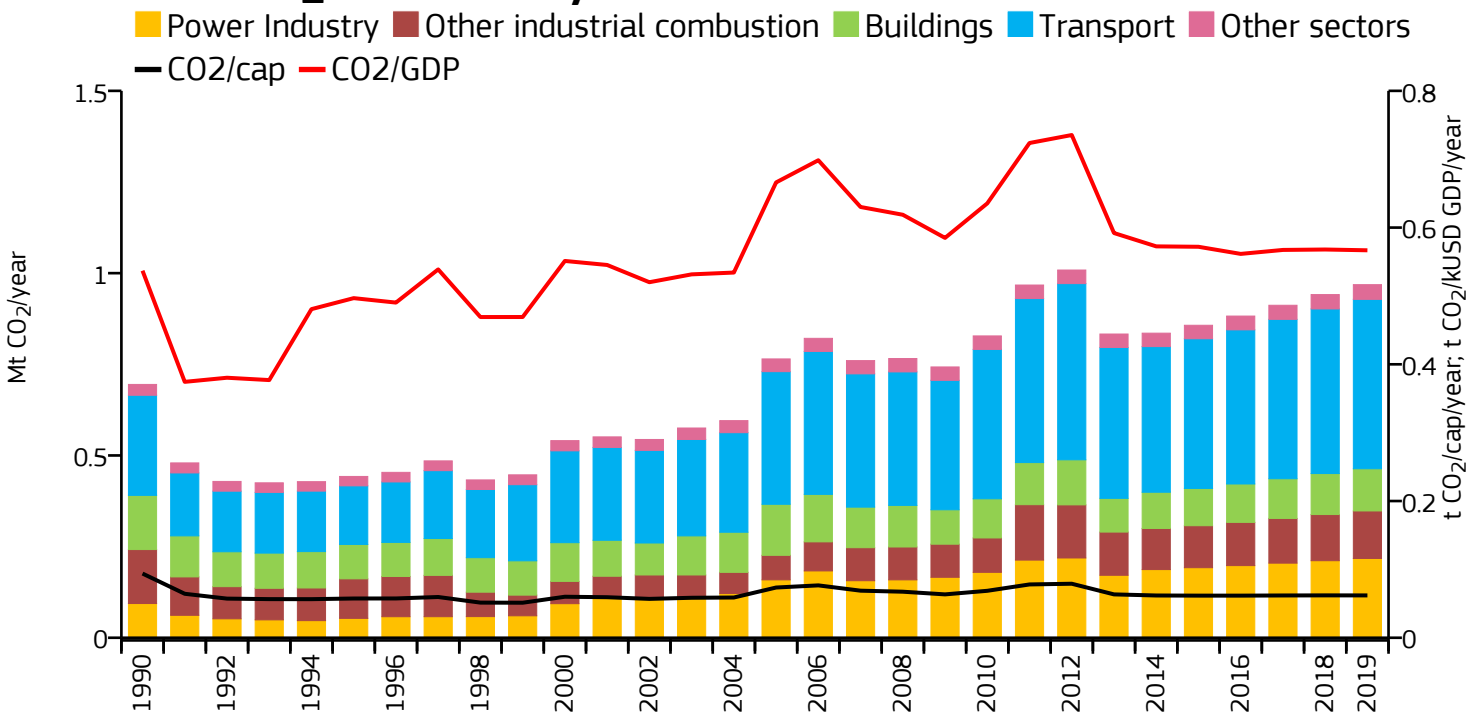
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.139	0.219	0.088	635.254k
2018	0.131	0.210	0.085	623.281k
2005	0.187	0.398	0.215	469.885k
1990	0.133	0.428	0.206	311.840k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+3%	-49%	+7%
Other industrial combustion	+41%	-69%	+7%
Buildings	-77%	-1%	+7%
Transport	+72%	+20%	+7%
Other sectors	+67%	+11%	+2%
All sectors	+4%	-26%	+6%

Somalia

Fossil CO_2 emissions by sector



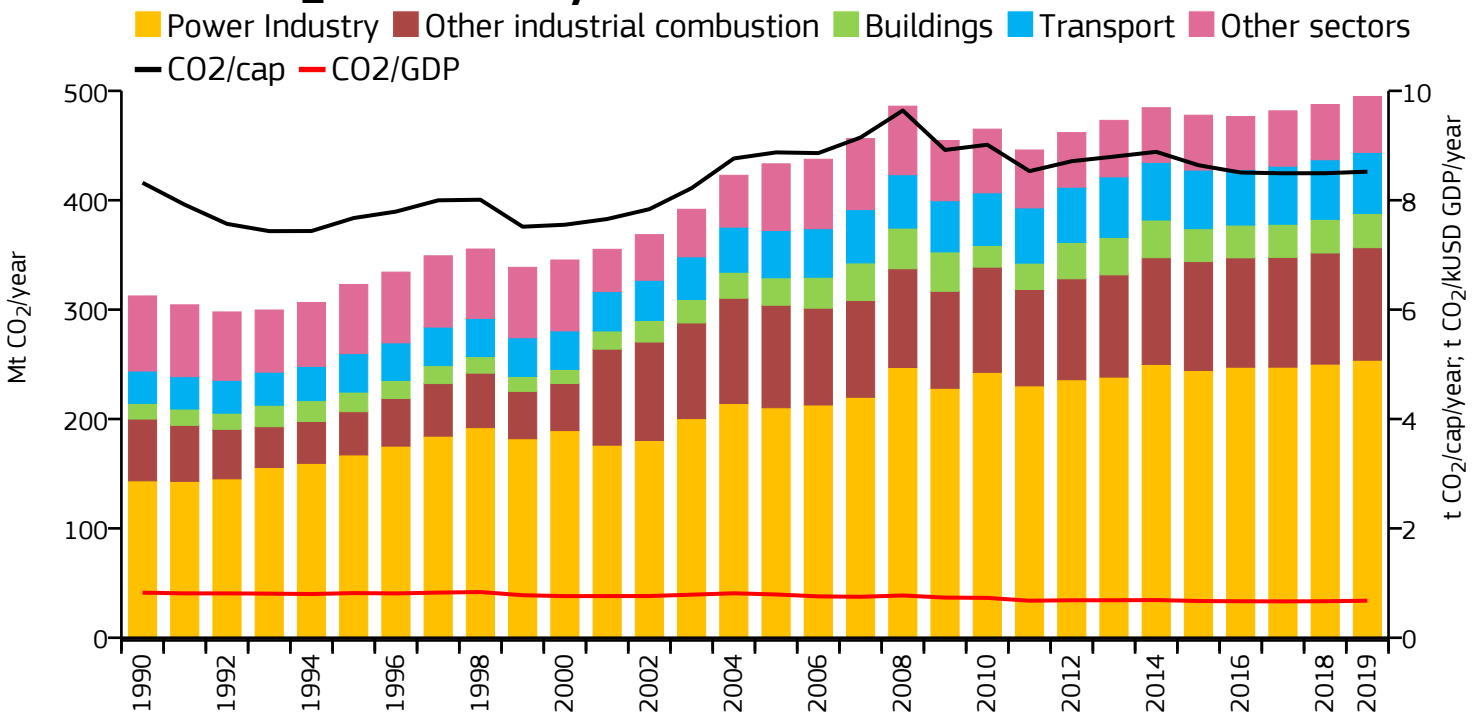
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.968	0.062	0.567	15.636M
2018	0.941	0.062	0.568	15.182M
2005	0.765	0.073	0.666	10.410M
1990	0.695	0.094	0.537	7.397M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+132%	+37%	+3%
Other industrial combustion	-12%	+94%	+3%
Buildings	-22%	-17%	+3%
Transport	+69%	+28%	+3%
Other sectors	+36%	+15%	+2%
All sectors	+39%	+27%	+3%

South Africa

Fossil CO_2 emissions by sector



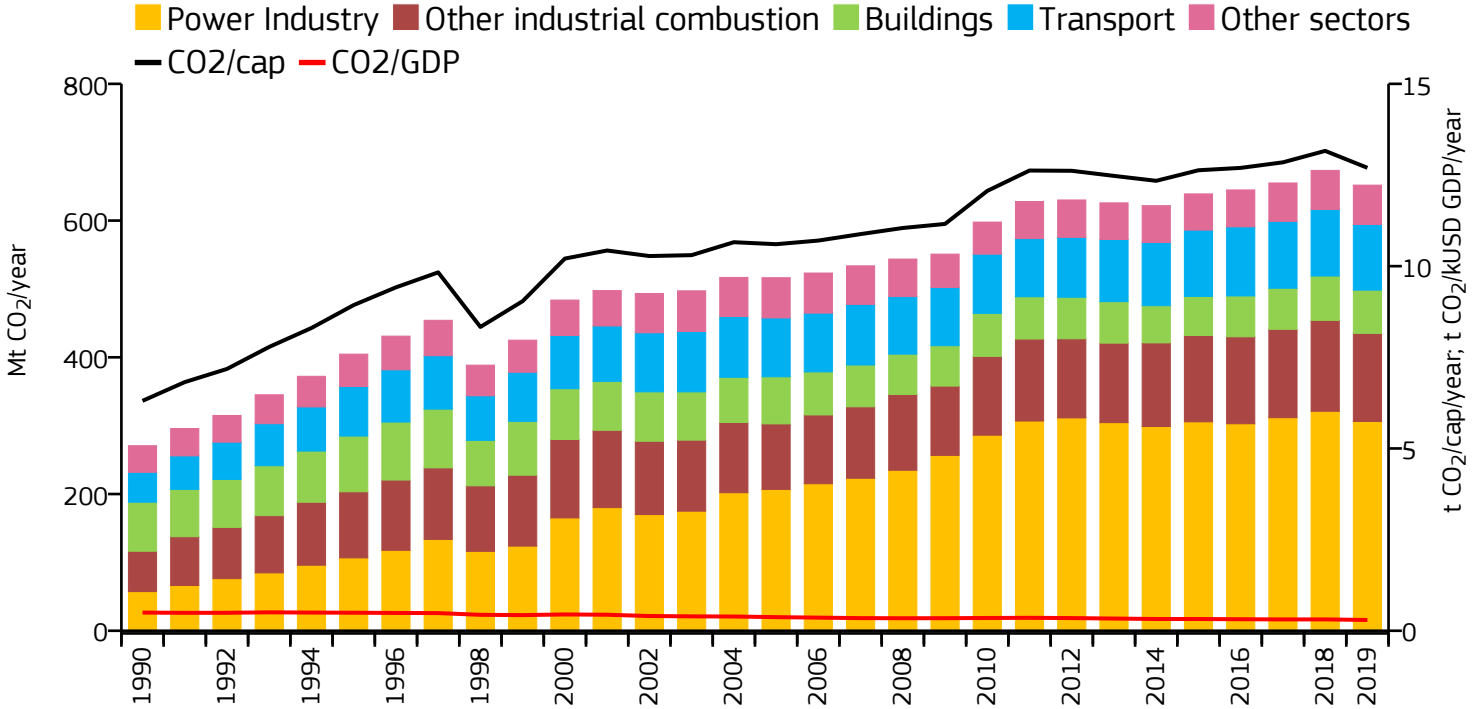
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	494.862	8.523	0.677	58.065M
2018	487.538	8.494	0.668	57.398M
2005	433.272	8.875	0.791	48.821M
1990	312.496	8.320	0.825	37.560M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+77%	+21%	+1%
Other industrial combustion	+82%	+10%	+1%
Buildings	+118%	+25%	+2%
Transport	+89%	+29%	+2%
Other sectors	-26%	-16%	+1%
All sectors	+58%	+14%	+2%

South Korea

Fossil CO_2 emissions by sector



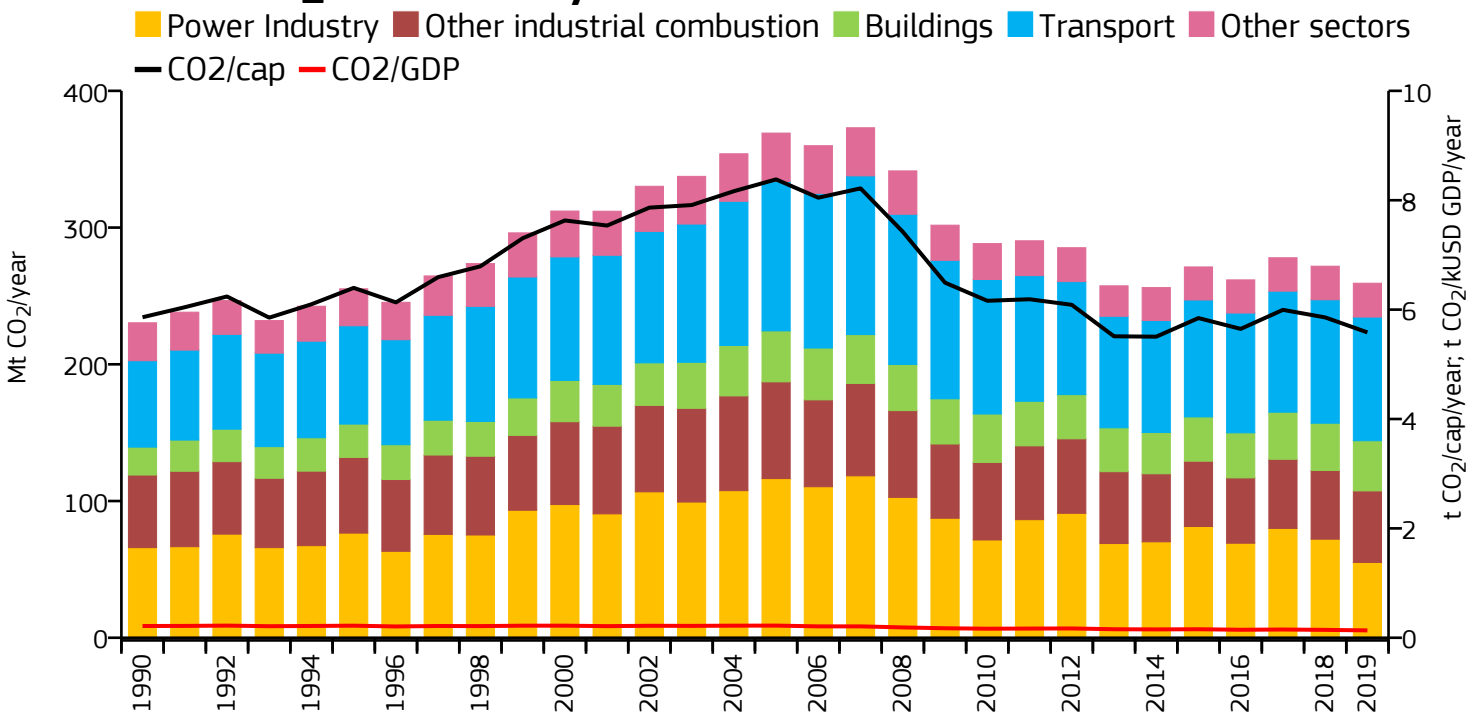
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	651.870	12.697	0.296	51.339M
2018	673.400	13.161	0.311	51.164M
2005	516.416	10.602	0.374	48.709M
1990	270.650	6.305	0.498	42.923M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+435%	+48%	-5%
Other industrial combustion	+118%	+34%	-3%
Buildings	-12%	-8%	-2%
Transport	+120%	+12%	-1%
Other sectors	+48%	-2%	+1%
All sectors	+141%	+26%	-3%

Spain and Andorra

Fossil CO_2 emissions by sector



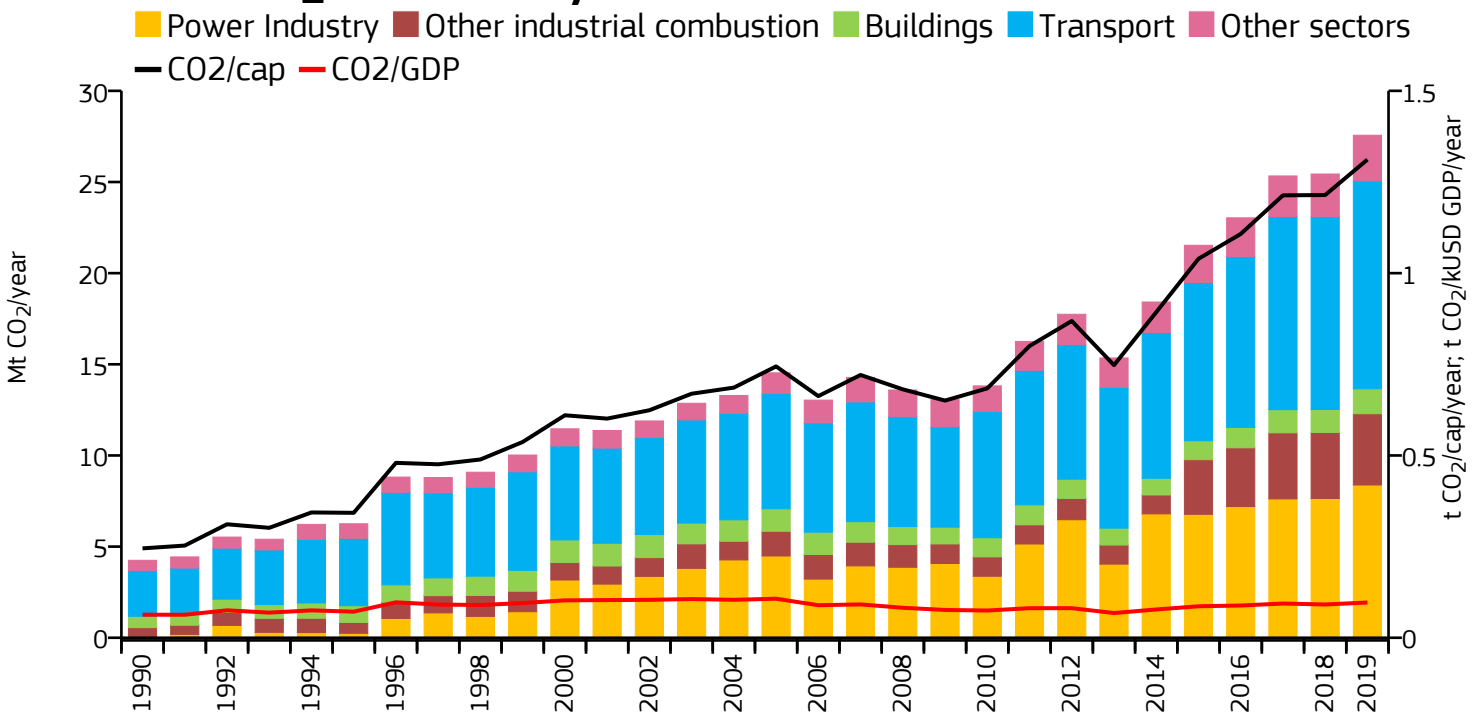
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	259.310	5.584	0.135	46.441M
2018	271.763	5.857	0.144	46.397M
2005	369.117	8.381	0.222	44.043M
1990	230.354	5.861	0.215	39.306M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-16%	-53%	-24%
Other industrial combustion	-1%	-26%	+4%
Buildings	+80%	-2%	+6%
Transport	+43%	-17%	0%
Other sectors	-11%	-30%	+1%
All sectors	+13%	-30%	-5%

Sri Lanka

Fossil CO_2 emissions by sector



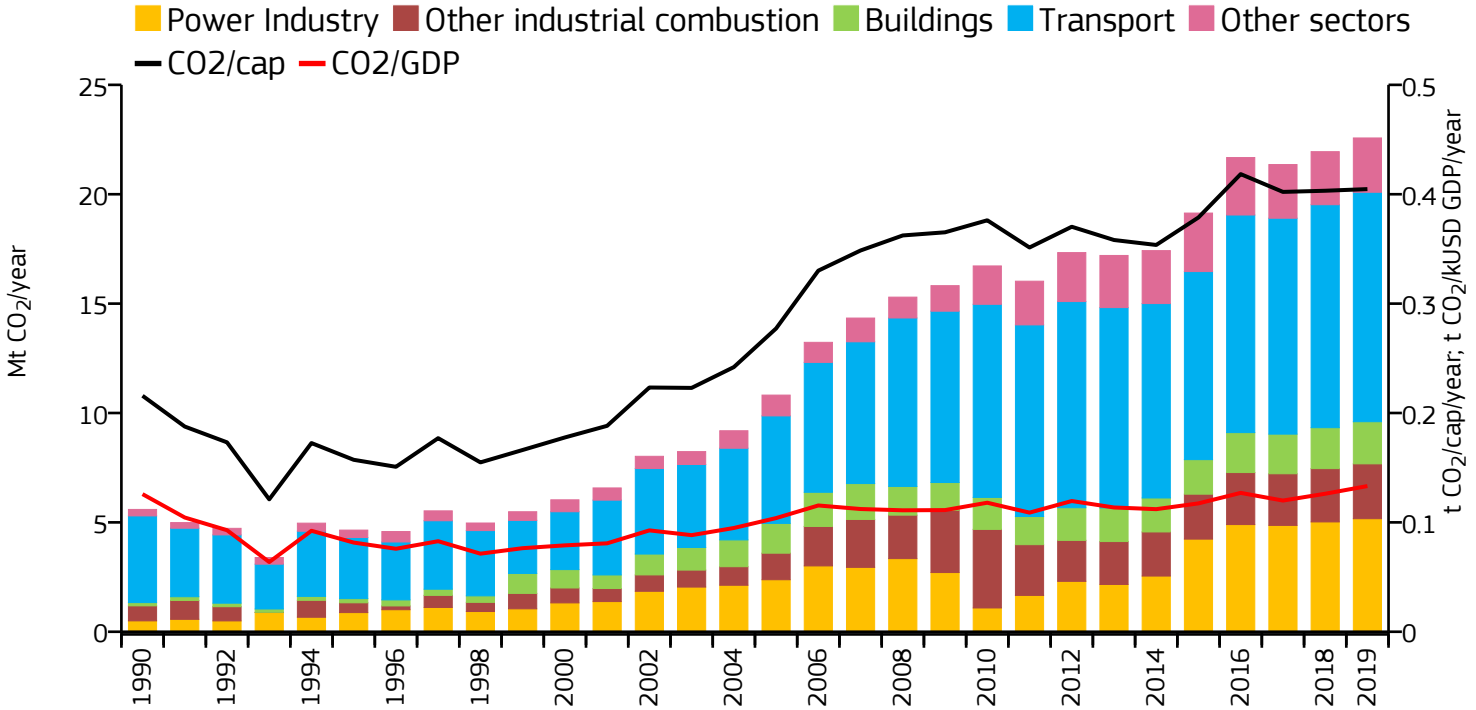
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	27.566	1.312	0.097	21.019M
2018	25.439	1.214	0.091	20.950M
2005	14.531	0.744	0.107	19.525M
1990	4.248	0.245	0.063	17.330M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+135242%	+87%	+10%
Other industrial combustion	+615%	+188%	+8%
Buildings	+118%	+11%	+8%
Transport	+357%	+81%	+8%
Other sectors	+338%	+120%	+7%
All sectors	+549%	+90%	+8%

Sudan and South Sudan

Fossil CO_2 emissions by sector



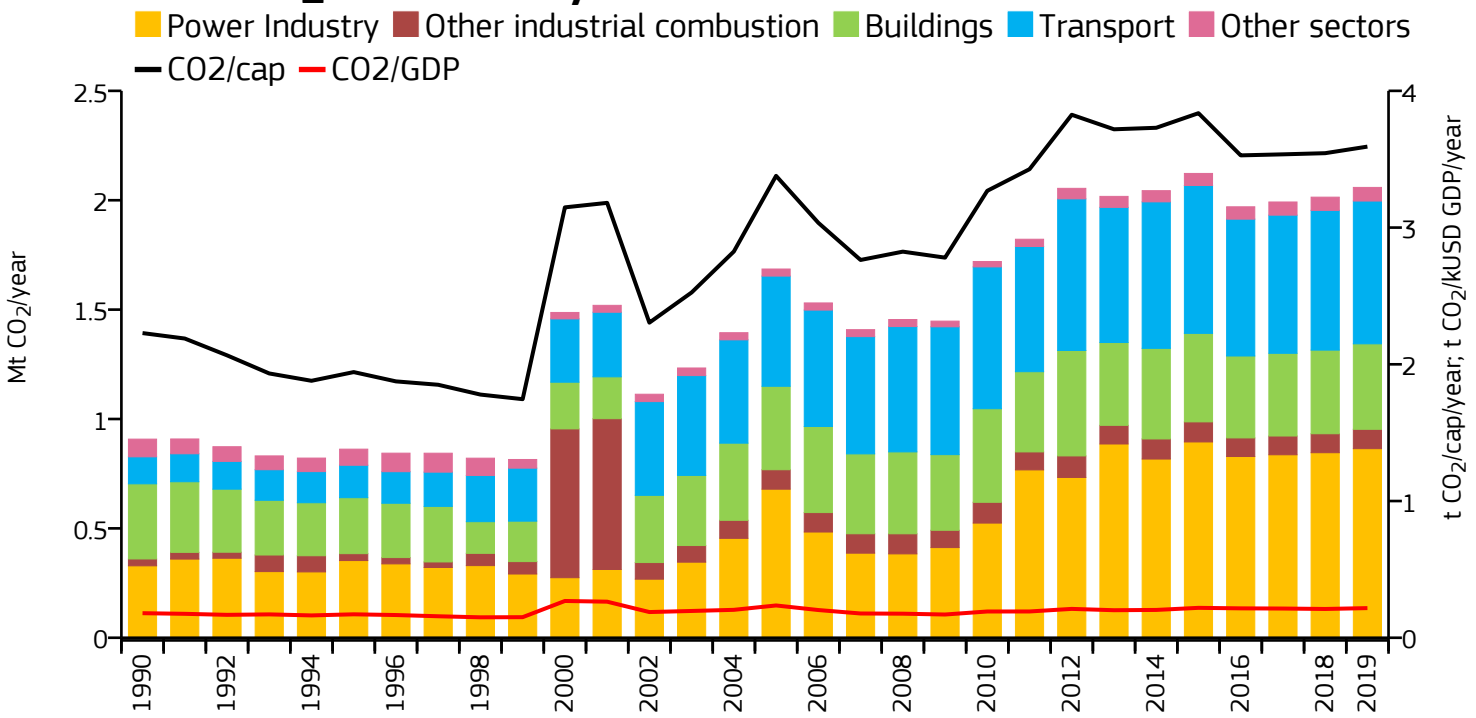
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	22.572	0.405	0.133	55.777M
2018	21.946	0.403	0.126	54.431M
2005	10.819	0.277	0.104	39.021M
1990	5.592	0.216	0.126	25.916M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+938%	+117%	+3%
Other industrial combustion	+265%	+106%	+3%
Buildings	+1194%	+42%	+3%
Transport	+165%	+113%	+3%
Other sectors	+738%	+161%	+2%
All sectors	+304%	+109%	+3%

Suriname

Fossil CO_2 emissions by sector



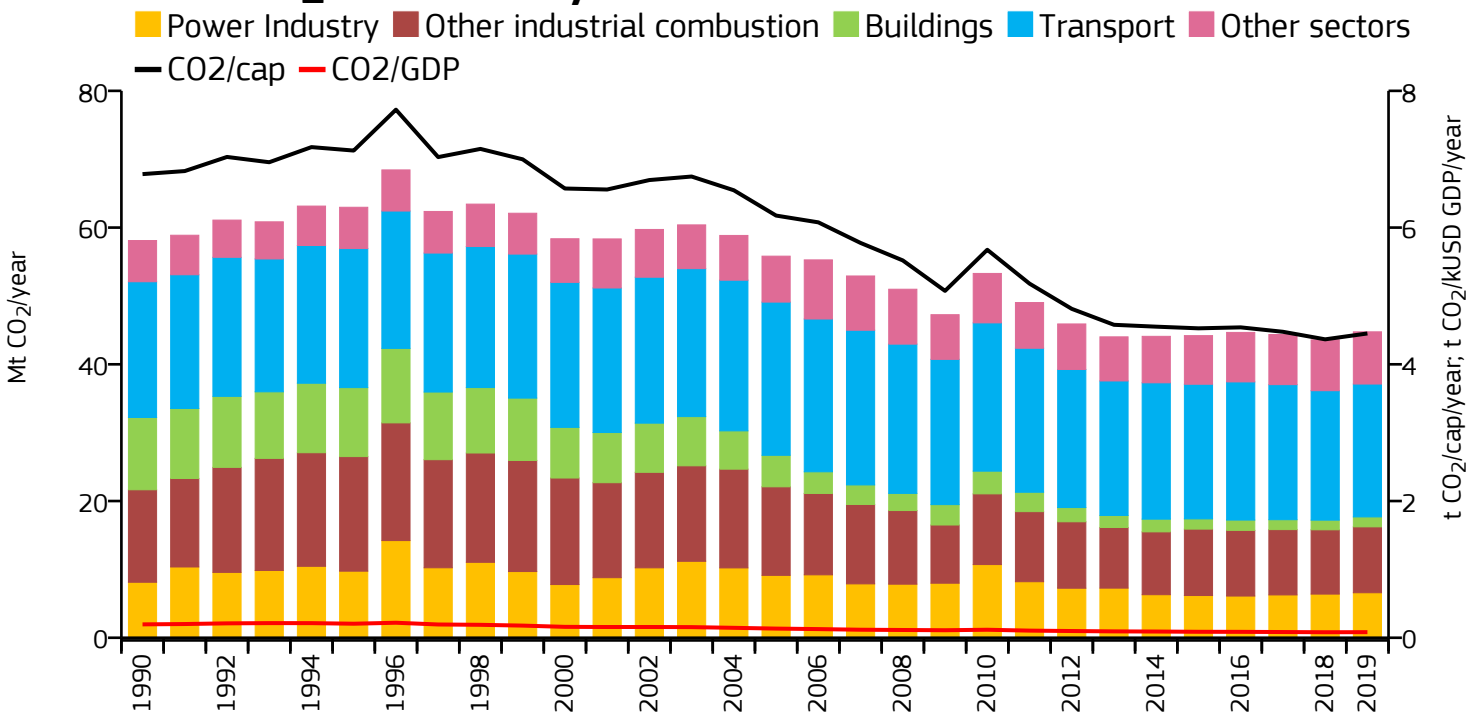
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.059	3.592	0.217	573.085k
2018	2.014	3.544	0.211	568.301k
2005	1.686	3.378	0.236	498.946k
1990	0.908	2.228	0.180	407.472k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+163%	+27%	+2%
Other industrial combustion	+182%	0%	+2%
Buildings	+14%	+2%	+2%
Transport	+429%	+30%	+2%
Other sectors	-23%	+93%	+3%
All sectors	+127%	+22%	+2%

Sweden

Fossil CO_2 emissions by sector



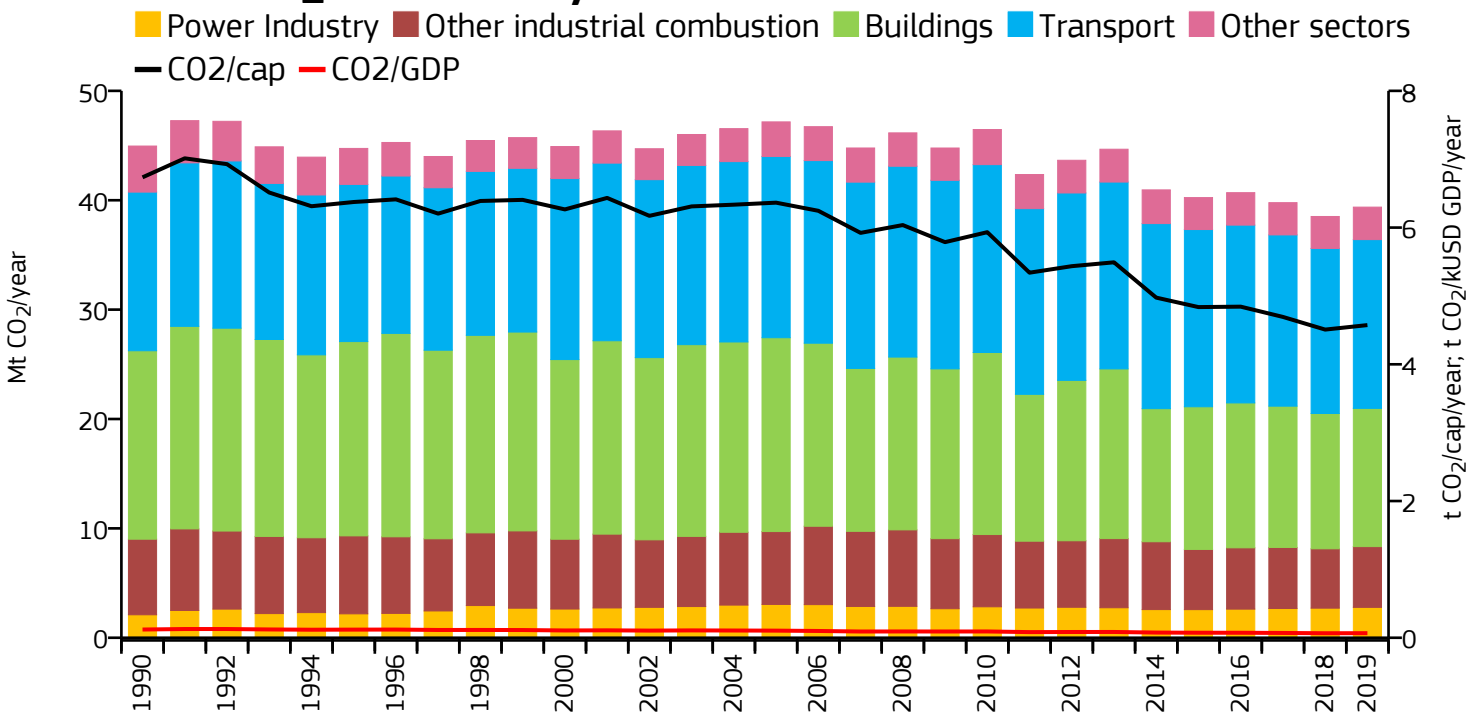
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	44.749	4.451	0.082	10.053M
2018	43.577	4.365	0.081	9.983M
2005	55.820	6.176	0.134	9.039M
1990	58.104	6.782	0.196	8.567M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-19%	-28%	+3%
Other industrial combustion	-29%	-26%	+3%
Buildings	-86%	-68%	+3%
Transport	-2%	-13%	+3%
Other sectors	+27%	+14%	+3%
All sectors	-23%	-20%	+3%

Switzerland and Liechtenstein

Fossil CO_2 emissions by sector



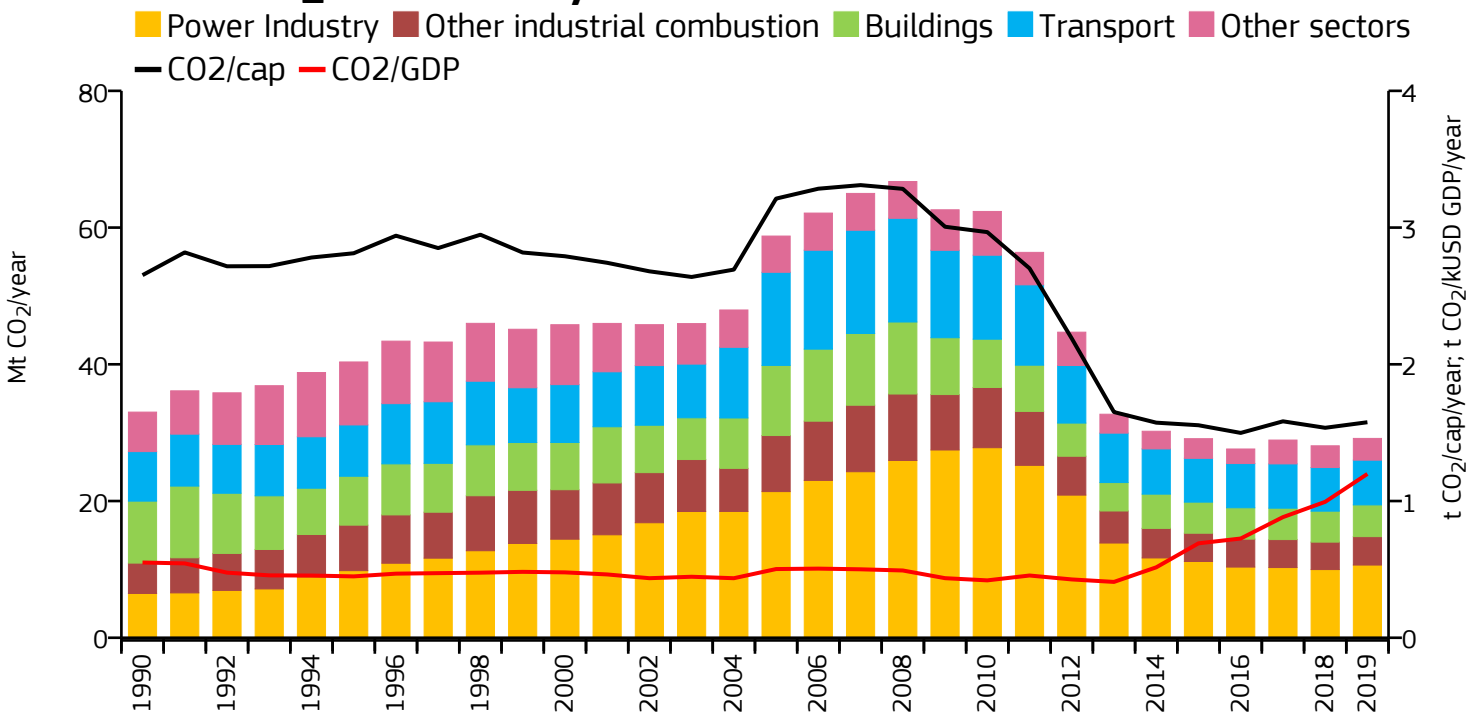
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	39.371	4.574	0.067	8.608M
2018	38.515	4.508	0.066	8.544M
2005	47.163	6.364	0.104	7.410M
1990	44.955	6.735	0.120	6.675M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+32%	-9%	+3%
Other industrial combustion	-20%	-17%	+2%
Buildings	-27%	-29%	+2%
Transport	+6%	-7%	+2%
Other sectors	-29%	-6%	+2%
All sectors	-12%	-17%	+2%

Syria

Fossil CO_2 emissions by sector



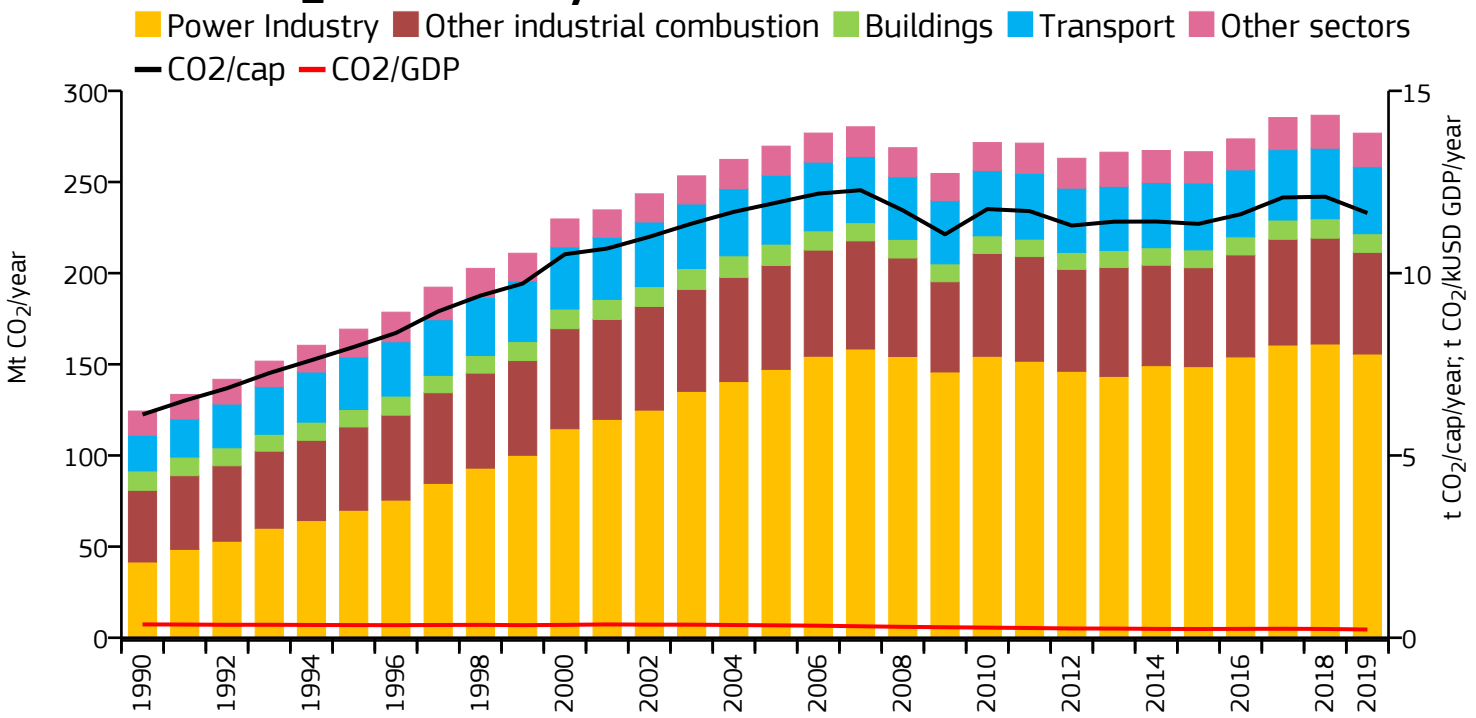
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	29.161	1.576	1.198	18.499M
2018	28.078	1.536	0.994	18.284M
2005	58.760	3.212	0.502	18.295M
1990	33.008	2.652	0.550	12.446M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+64%	-50%	+7%
Other industrial combustion	-6%	-49%	+3%
Buildings	-49%	-55%	+3%
Transport	-10%	-52%	+3%
Other sectors	-45%	-40%	0%
All sectors	-12%	-50%	+4%

Taiwan

Fossil CO_2 emissions by sector



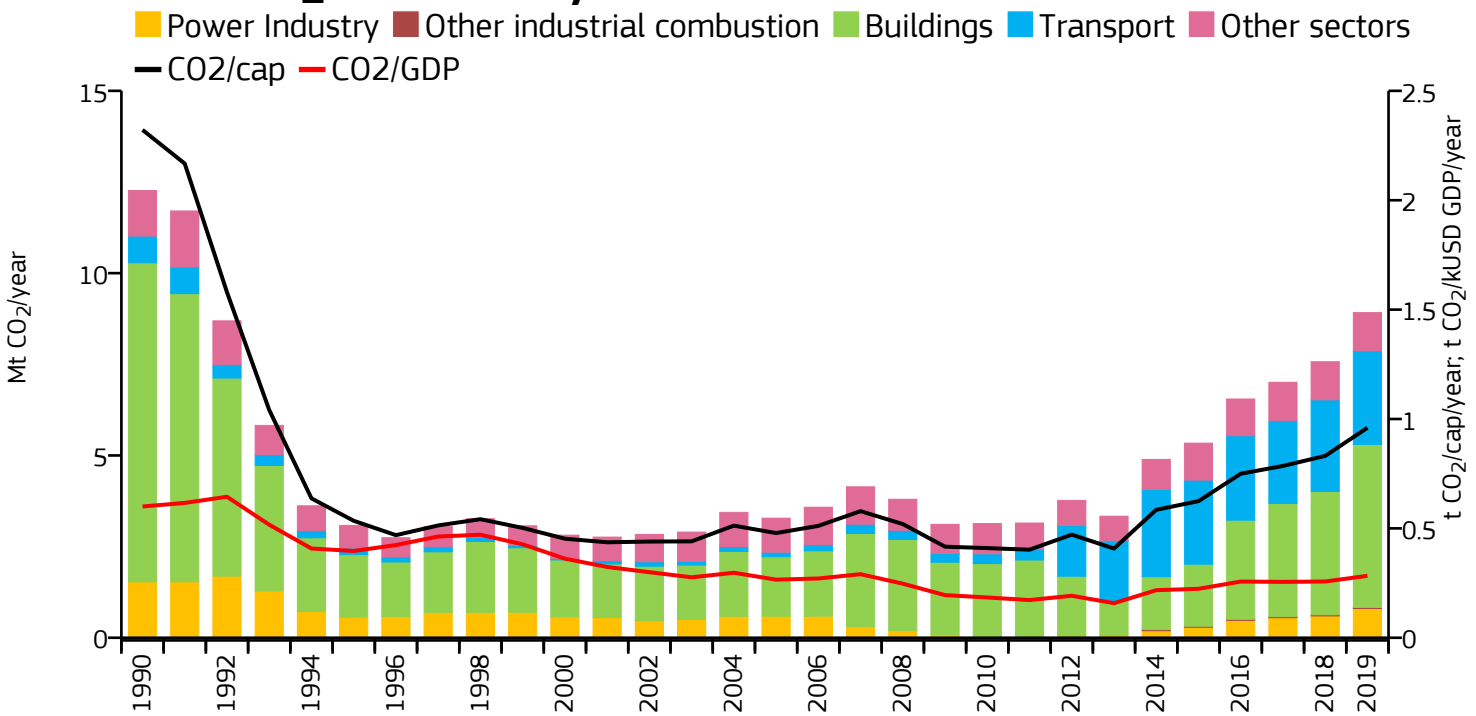
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	276.785	11.650	0.227	23.758M
2018	286.610	12.096	0.241	23.694M
2005	269.676	11.931	0.341	22.603M
1990	124.362	6.123	0.366	20.312M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+274%	+6%	-3%
Other industrial combustion	+42%	-2%	-4%
Buildings	-4%	-13%	-4%
Transport	+88%	-3%	-5%
Other sectors	+39%	+15%	+2%
All sectors	+123%	+3%	-3%

Tajikistan

Fossil CO_2 emissions by sector

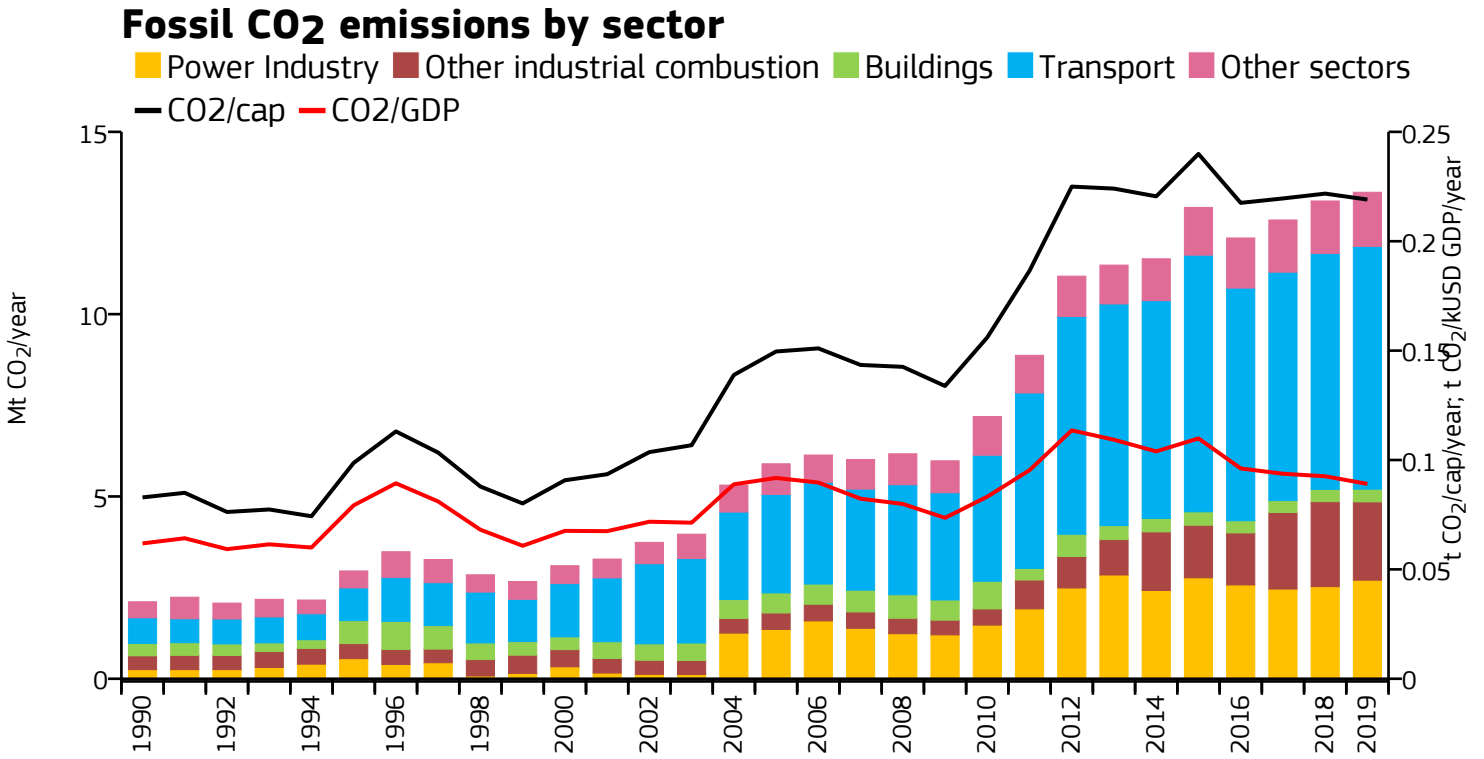


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	8.919	0.960	0.283	9.292M
2018	7.570	0.831	0.257	9.107M
2005	3.280	0.479	0.266	6.854M
1990	12.267	2.322	0.600	5.284M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-48%	+36%	+34%
Other industrial combustion			+2%
Buildings	-49%	+174%	+32%
Transport	+251%	+1964%	+2%
Other sectors	-16%	+12%	0%
All sectors	-27%	+172%	+18%

Tanzania



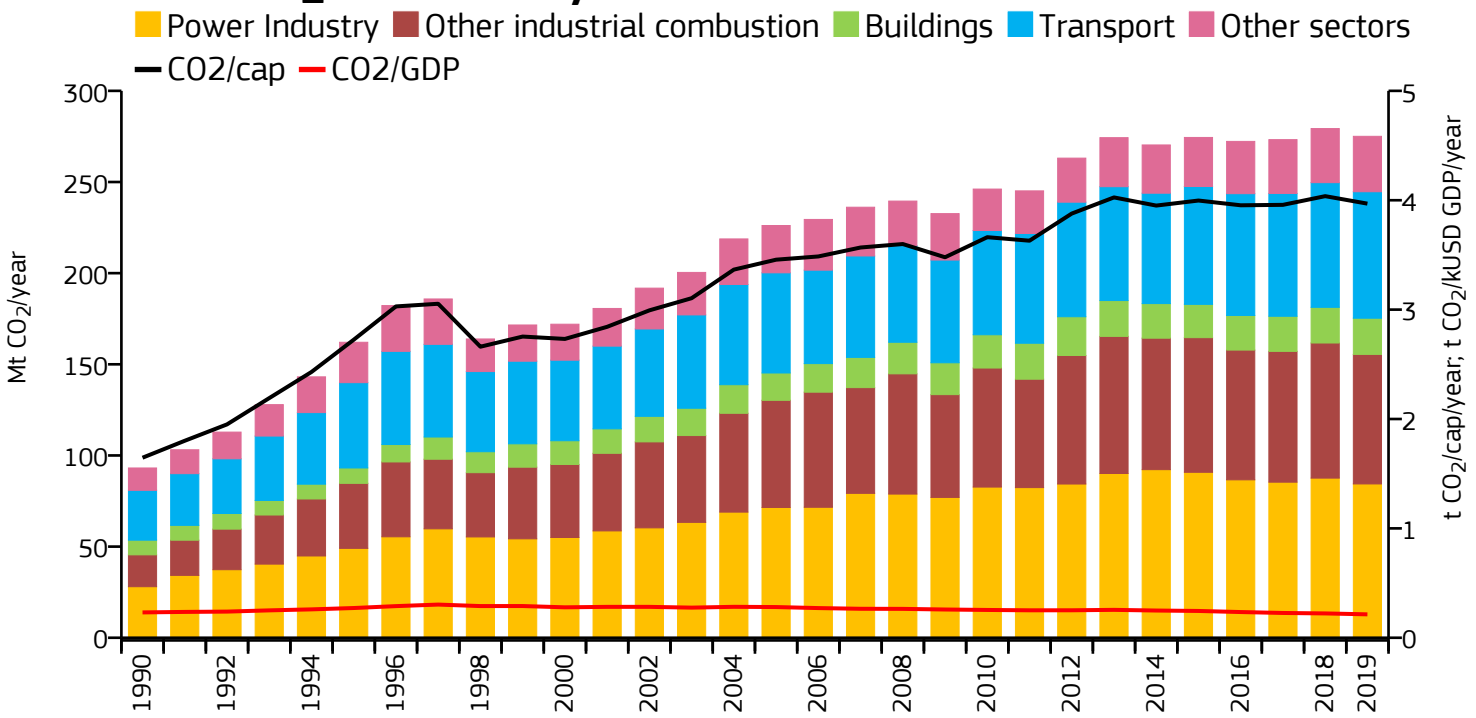
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	13.343	0.219	0.089	60.914M
2018	13.105	0.222	0.093	59.091M
2005	5.896	0.150	0.092	39.410M
1990	2.111	0.083	0.062	25.460M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+981%	+100%	+7%
Other industrial combustion	+467%	+377%	-8%
Buildings	+2%	-37%	+3%
Transport	+852%	+147%	+3%
Other sectors	+238%	+77%	+3%
All sectors	+532%	+126%	+2%

Thailand

Fossil CO_2 emissions by sector

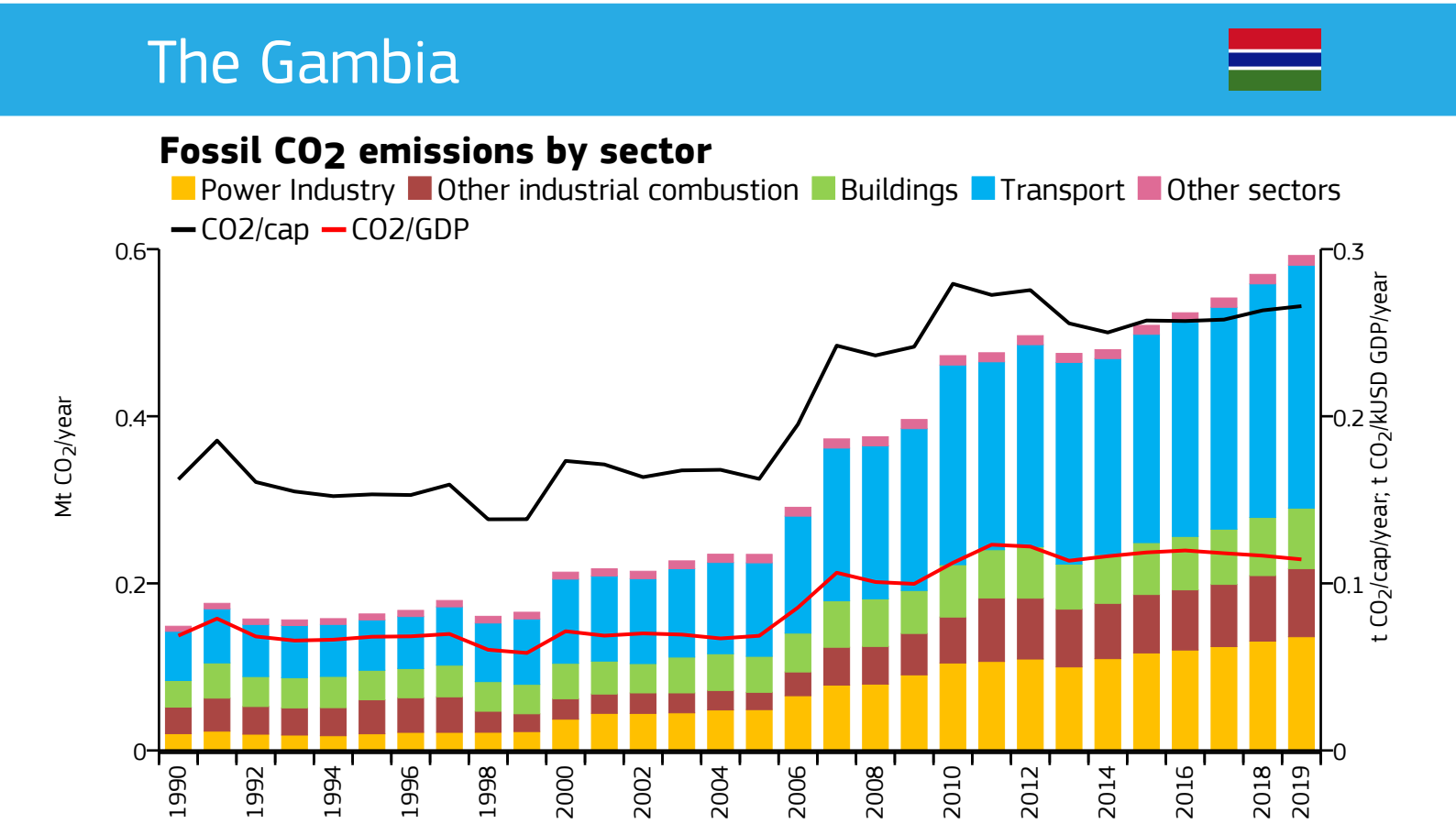


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	275.065	3.969	0.214	69.306M
2018	279.311	4.037	0.222	69.183M
2005	226.140	3.456	0.281	65.425M
1990	93.134	1.646	0.232	56.583M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+201%	+18%	-4%
Other industrial combustion	+307%	+21%	-4%
Buildings	+146%	+33%	+1%
Transport	+154%	+26%	+1%
Other sectors	+148%	+17%	+2%
All sectors	+195%	+22%	-2%

The Gambia



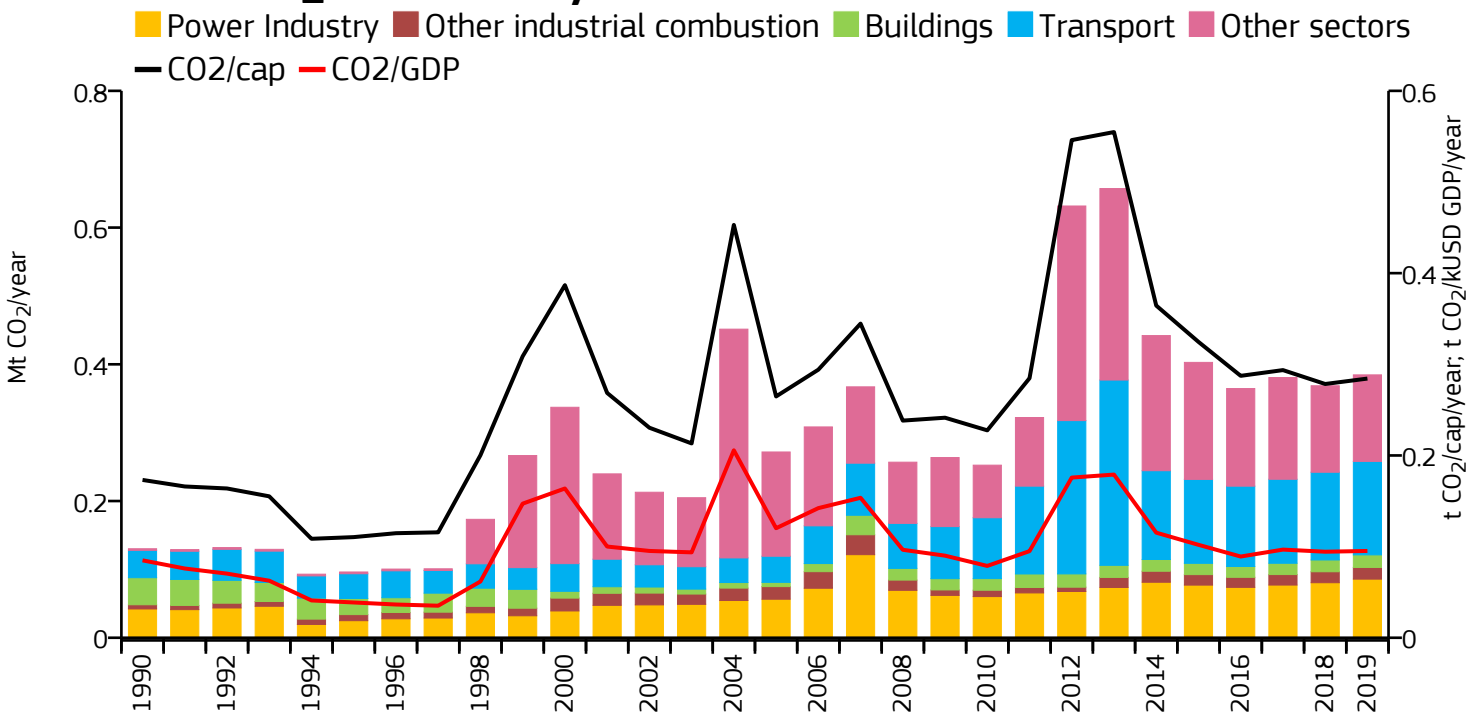
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.592	0.266	0.114	2.228M
2018	0.570	0.263	0.117	2.164M
2005	0.235	0.163	0.069	1.444M
1990	0.149	0.162	0.069	916.808k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+577%	+179%	+4%
Other industrial combustion	+157%	+294%	+4%
Buildings	+127%	+68%	+4%
Transport	+394%	+160%	+4%
Other sectors	+89%	+15%	+2%
All sectors	+298%	+152%	+4%

Timor-Leste

Fossil CO_2 emissions by sector

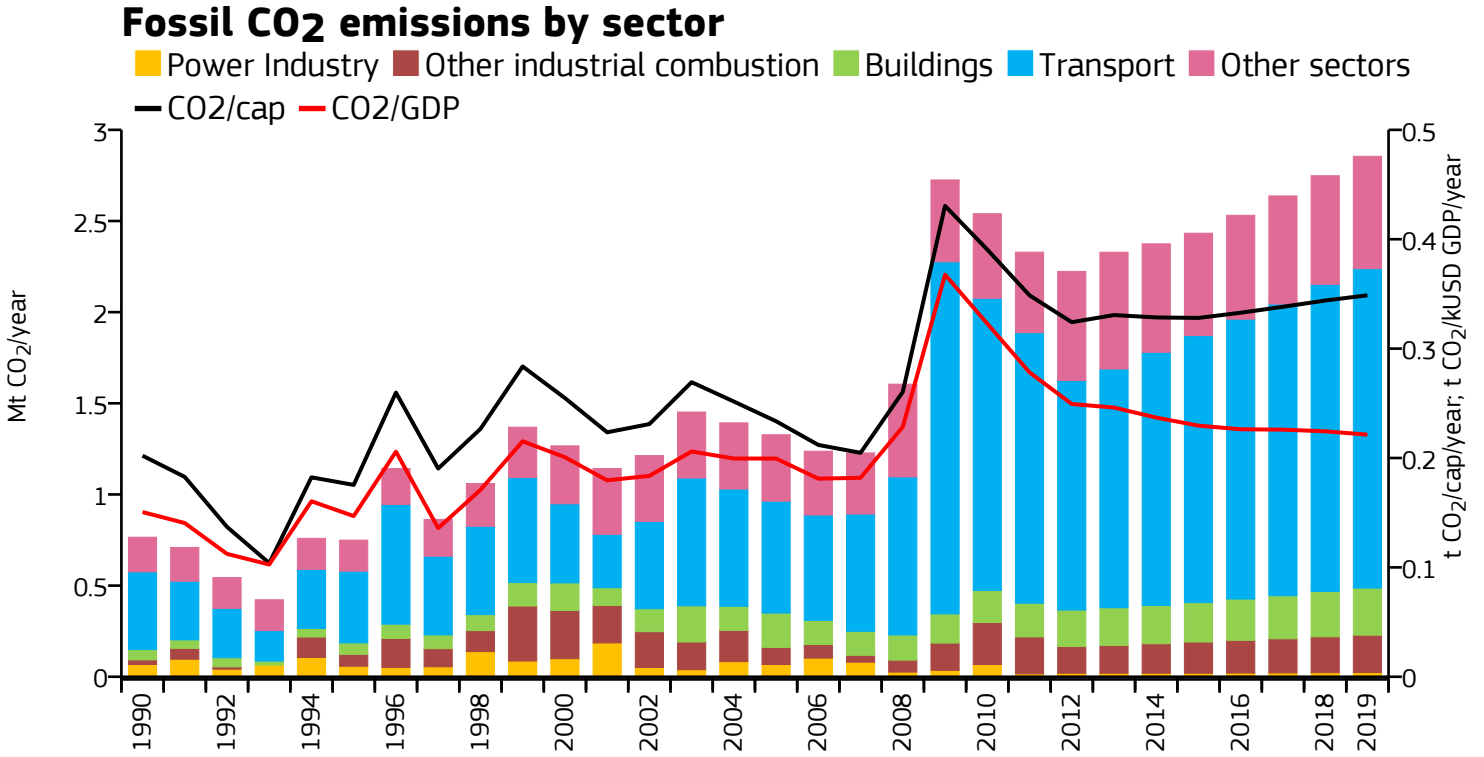


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.385	0.284	0.095	1.352M
2018	0.369	0.278	0.094	1.324M
2005	0.272	0.265	0.120	1.026M
1990	0.130	0.173	0.085	751.933k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +103%	↗ +52%	↗ +7%
Other industrial combustion	↗ +180%	↘ -7%	↗ +7%
Buildings	↘ -54%	↗ +195%	↗ +7%
Transport	↗ +242%	↗ +258%	↗ +7%
Other sectors	↗ +5329%	↘ -17%	→ 0%
All sectors	↗ +195%	↗ +41%	→ +4%

Togo



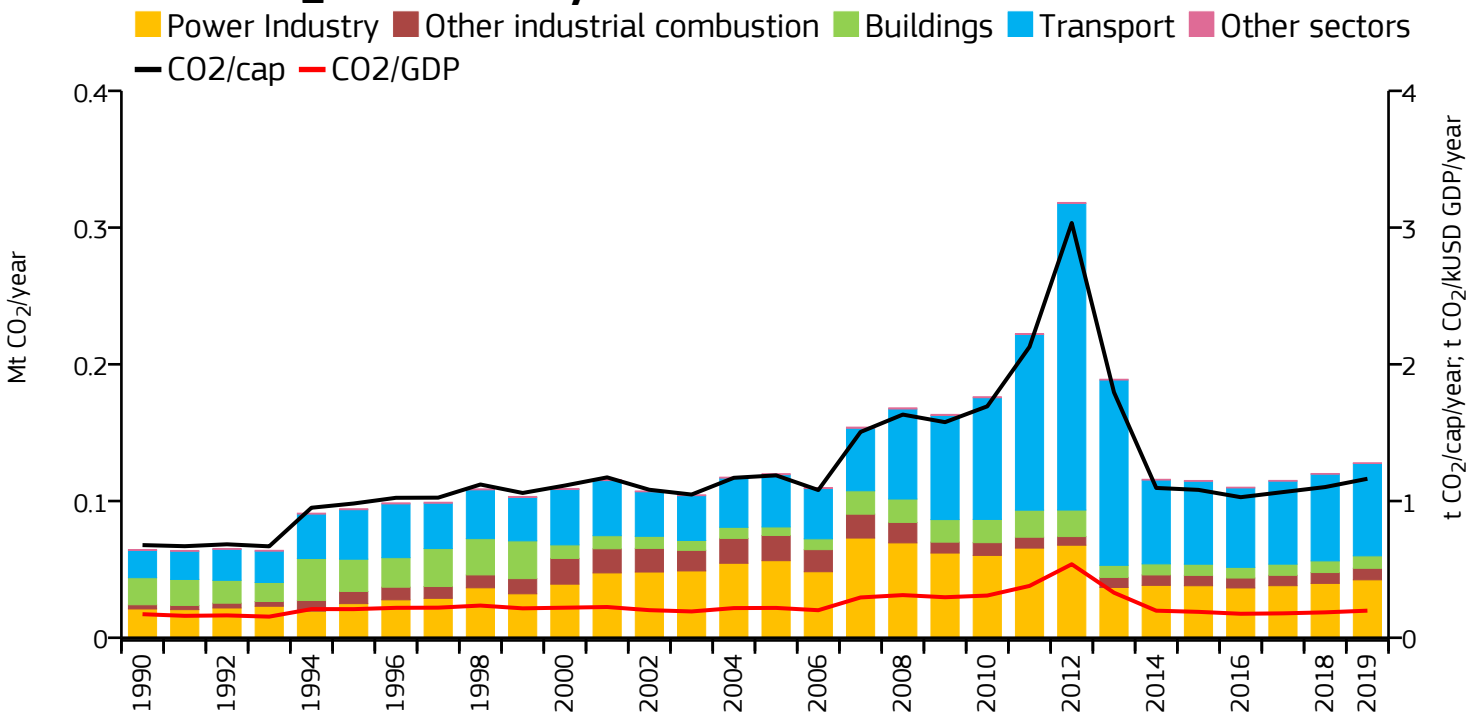
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	2.855	0.349	0.221	8.186M
2018	2.749	0.344	0.224	7.991M
2005	1.328	0.234	0.199	5.683M
1990	0.765	0.202	0.151	3.787M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-66%	-66%	+4%
Other industrial combustion	+723%	+119%	+4%
Buildings	+357%	+37%	+4%
Transport	+311%	+185%	+4%
Other sectors	+224%	+69%	+3%
All sectors	+273%	+115%	+4%

Tonga

Fossil CO_2 emissions by sector



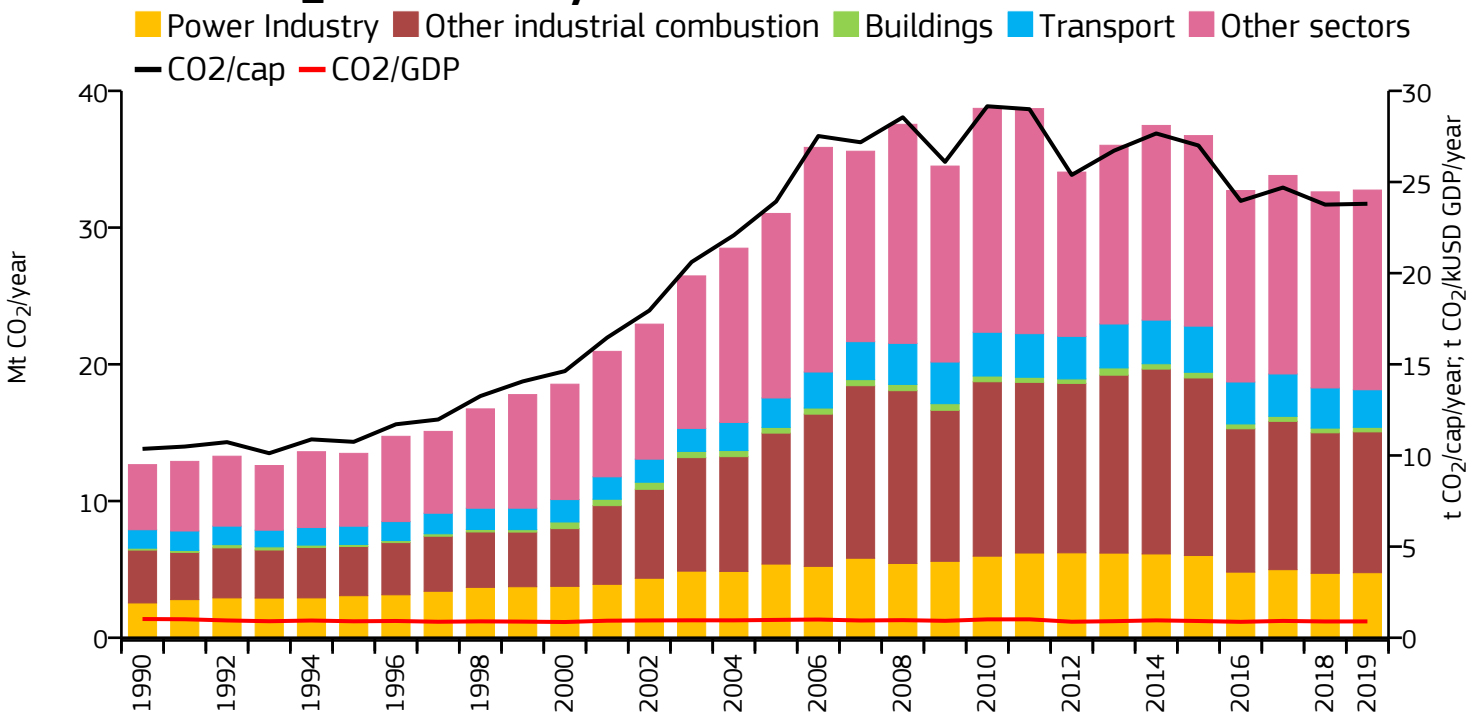
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.128	1.163	0.198	110.041k
2018	0.120	1.102	0.186	109.008k
2005	0.120	1.188	0.218	101.041k
1990	0.064	0.678	0.172	95.153k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+101%	-25%	+7%
Other industrial combustion	+177%	-54%	+7%
Buildings	-54%	+46%	+7%
Transport	+238%	+77%	+7%
Other sectors	-9%	-30%	-3%
All sectors	+98%	+7%	+6%

Trinidad and Tobago

Fossil CO_2 emissions by sector



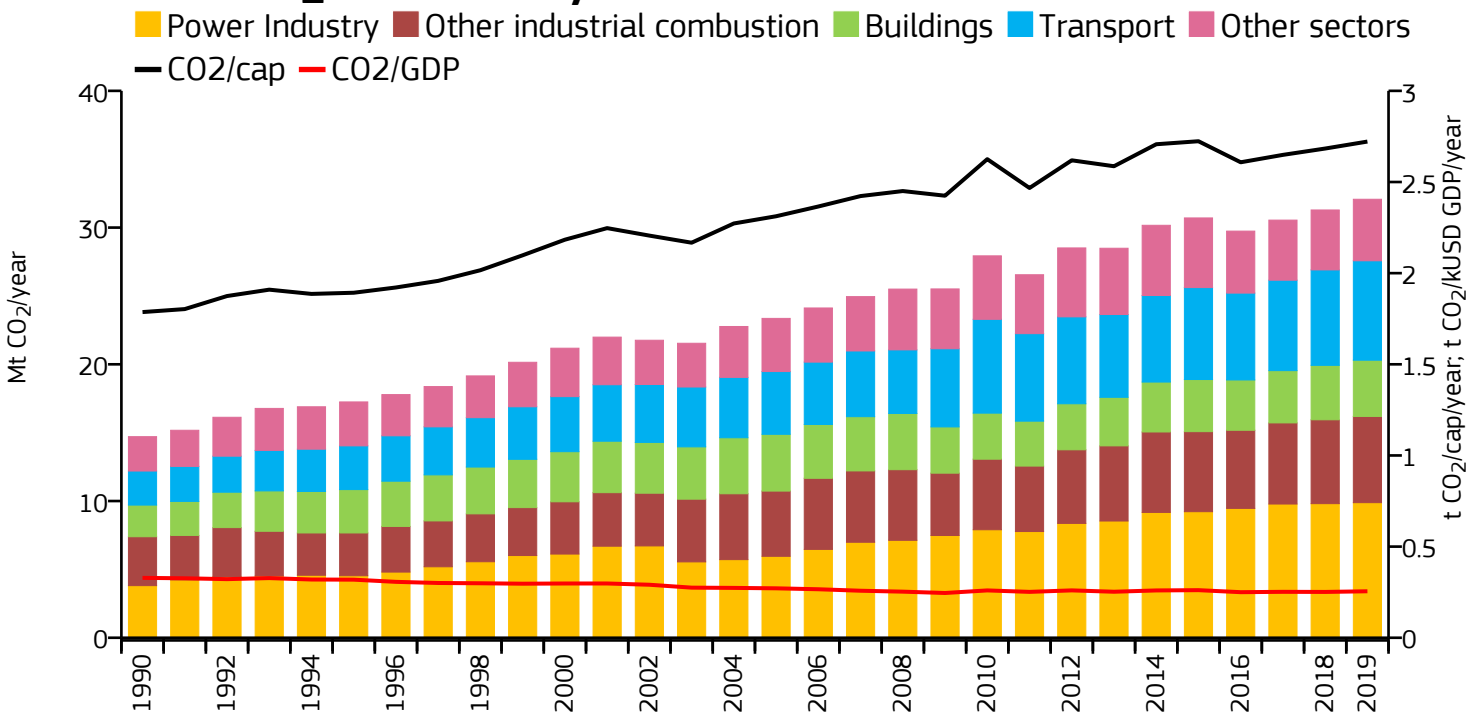
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	32.744	23.806	0.897	1.375M
2018	32.612	23.759	0.893	1.373M
2005	31.033	23.928	0.979	1.297M
1990	12.660	10.361	1.027	1.222M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+87%	-12%	+1%
Other industrial combustion	+166%	+8%	0%
Buildings	+139%	-20%	-3%
Transport	+104%	+28%	-7%
Other sectors	+207%	+8%	+2%
All sectors	+159%	+6%	0%

Tunisia

Fossil CO_2 emissions by sector



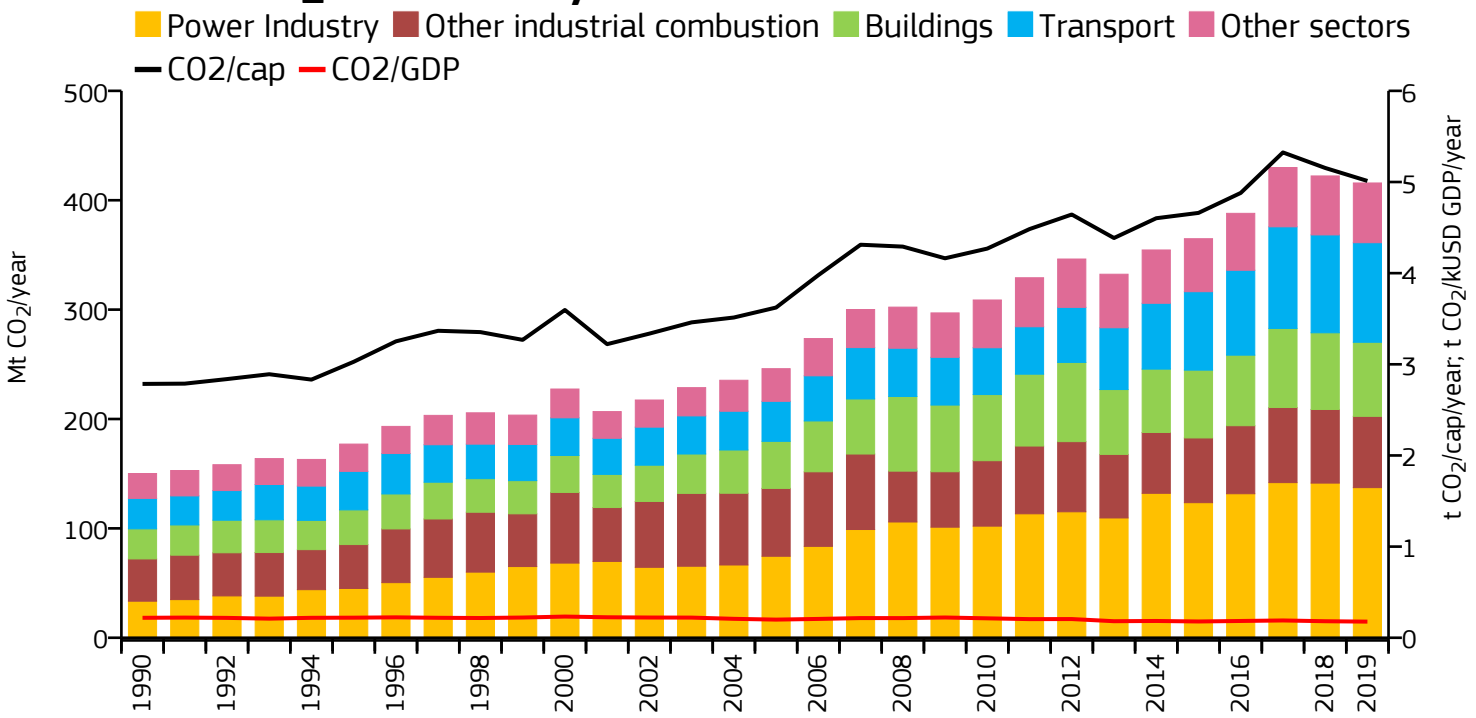
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	32.072	2.722	0.255	11.783M
2018	31.288	2.684	0.251	11.659M
2005	23.358	2.312	0.271	10.102M
1990	14.708	1.787	0.328	8.233M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+159%	+66%	+1%
Other industrial combustion	+76%	+32%	+3%
Buildings	+78%	-1%	+3%
Transport	+192%	+58%	+4%
Other sectors	+79%	+16%	+3%
All sectors	+118%	+37%	+3%

Turkey

Fossil CO_2 emissions by sector



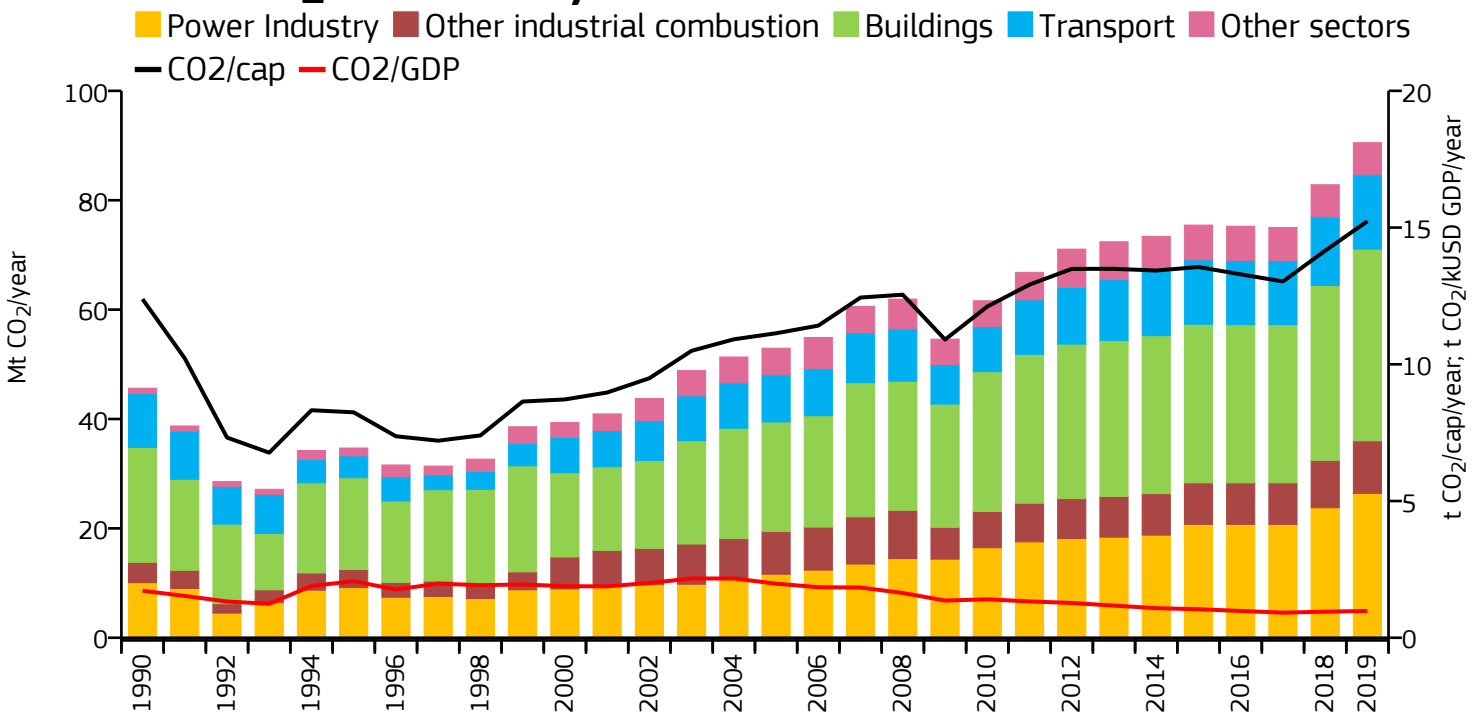
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	415.783	5.012	0.177	82.962M
2018	422.211	5.154	0.181	81.917M
2005	245.998	3.623	0.199	67.903M
1990	150.164	2.785	0.219	53.922M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+311%	+84%	-3%
Other industrial combustion	+69%	+5%	-3%
Buildings	+146%	+57%	-3%
Transport	+227%	+149%	+2%
Other sectors	+140%	+83%	+1%
All sectors	+177%	+69%	-2%

Turkmenistan

Fossil CO_2 emissions by sector



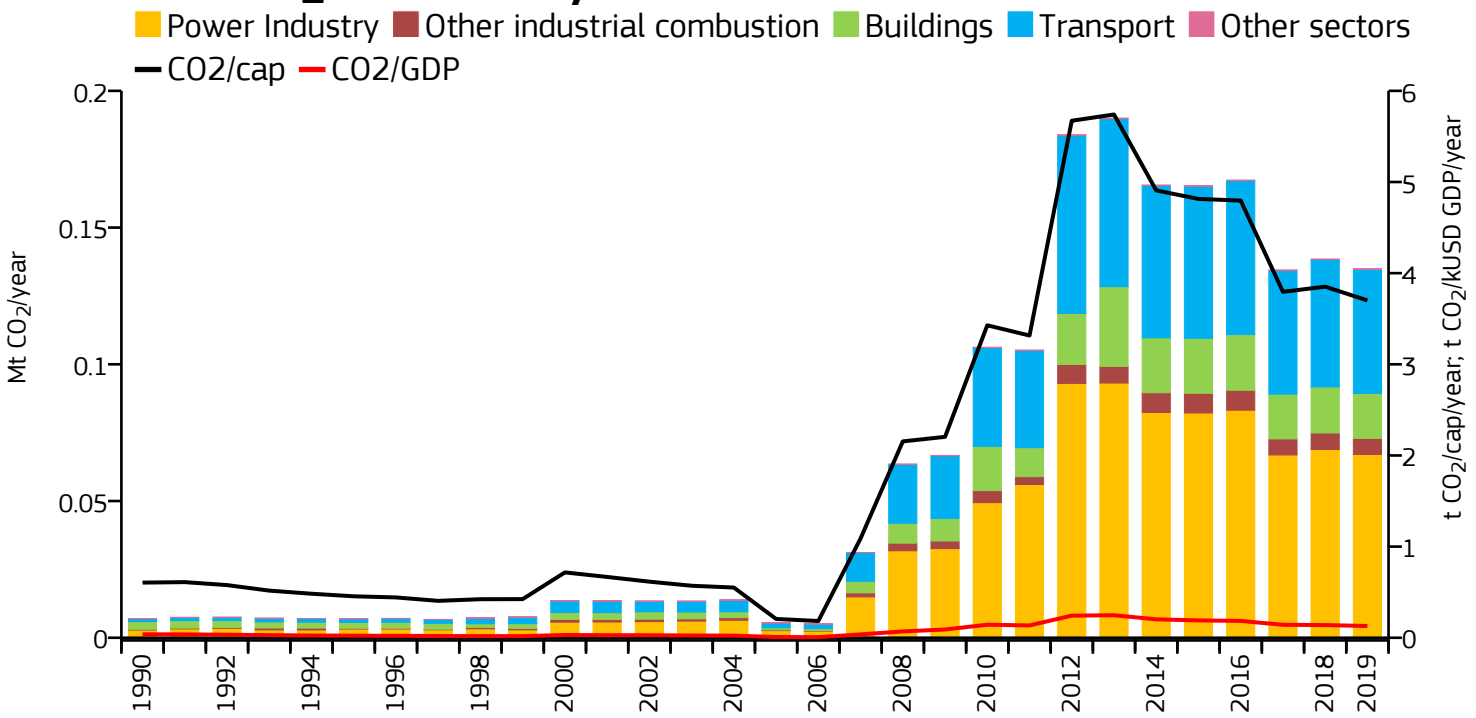
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	90.523	15.233	0.980	5.943M
2018	82.828	14.155	0.954	5.851M
2005	52.944	11.135	1.978	4.755M
1990	45.628	12.386	1.718	3.684M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+162%	+127%	+11%
Other industrial combustion	+157%	+23%	+11%
Buildings	+67%	+75%	+10%
Transport	+39%	+57%	+8%
Other sectors	+492%	+21%	0%
All sectors	+98%	+71%	+9%

Turks and Caicos Islands

Fossil CO_2 emissions by sector



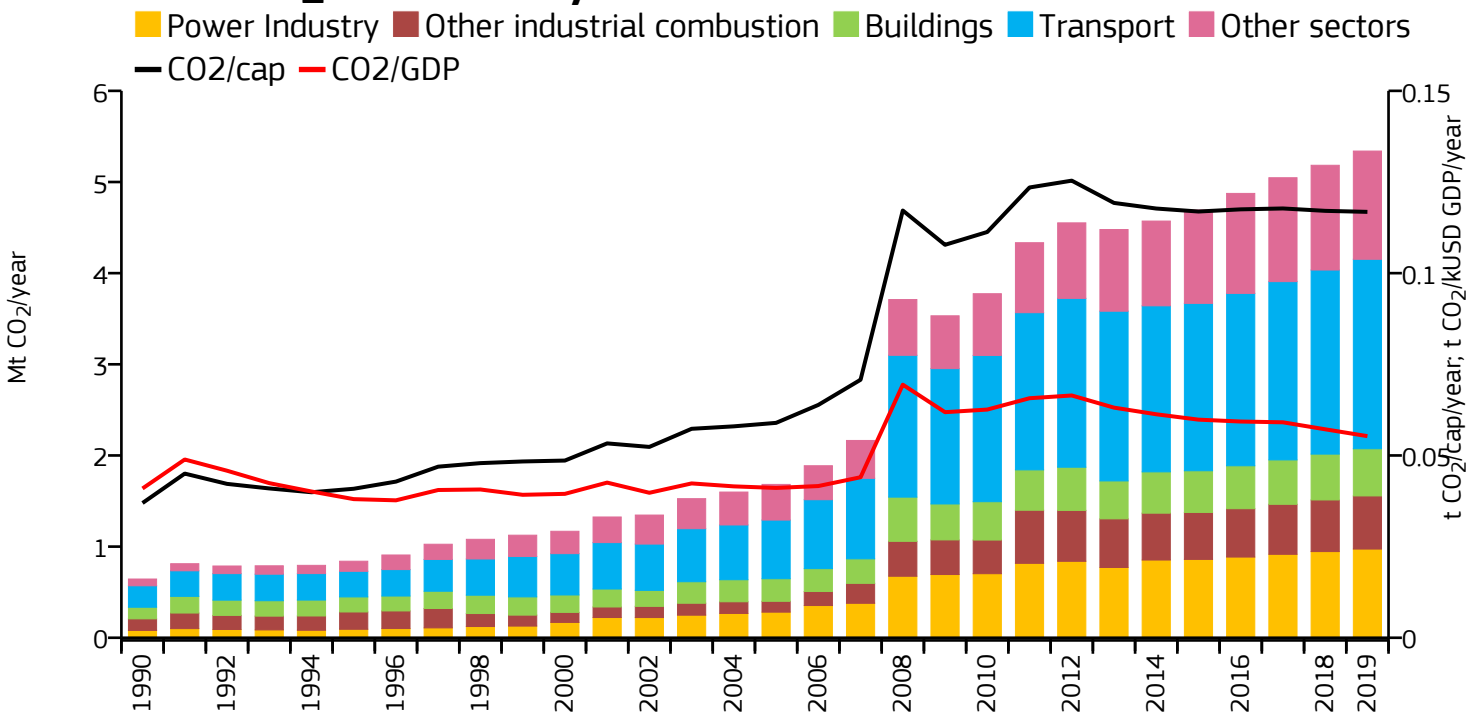
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.135	3.701	0.129	36.461k
2018	0.139	3.852	0.139	35.963k
2005	0.005	0.206	0.008	26.448k
1990	0.007	0.605	0.038	11.552k

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+2272%	+2470%	-3%
Other industrial combustion	+2080%	+2034%	-3%
Buildings	+483%	+2085%	-2%
Transport	+4179%	+2404%	-3%
Other sectors	+1580%	+1766%	+2%
All sectors	+1831%	+2371%	-3%

Uganda

Fossil CO_2 emissions by sector



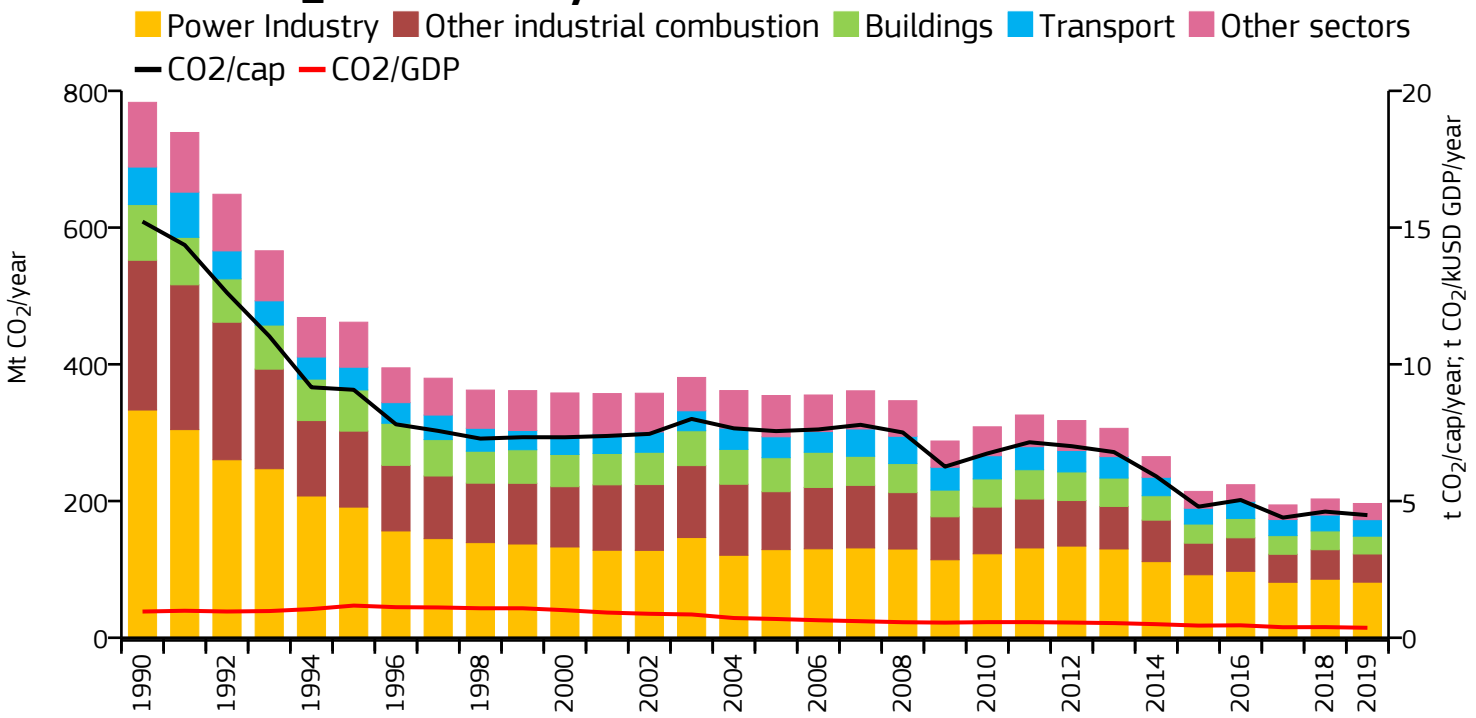
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5.340	0.117	0.055	45.712M
2018	5.184	0.117	0.057	44.271M
2005	1.682	0.059	0.041	28.544M
1990	0.644	0.037	0.041	17.439M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+1110%	+246%	+3%
Other industrial combustion	+359%	+389%	+3%
Buildings	+306%	+109%	+3%
Transport	+783%	+223%	+3%
Other sectors	+1499%	+204%	+3%
All sectors	+729%	+217%	+3%

Ukraine

Fossil CO_2 emissions by sector



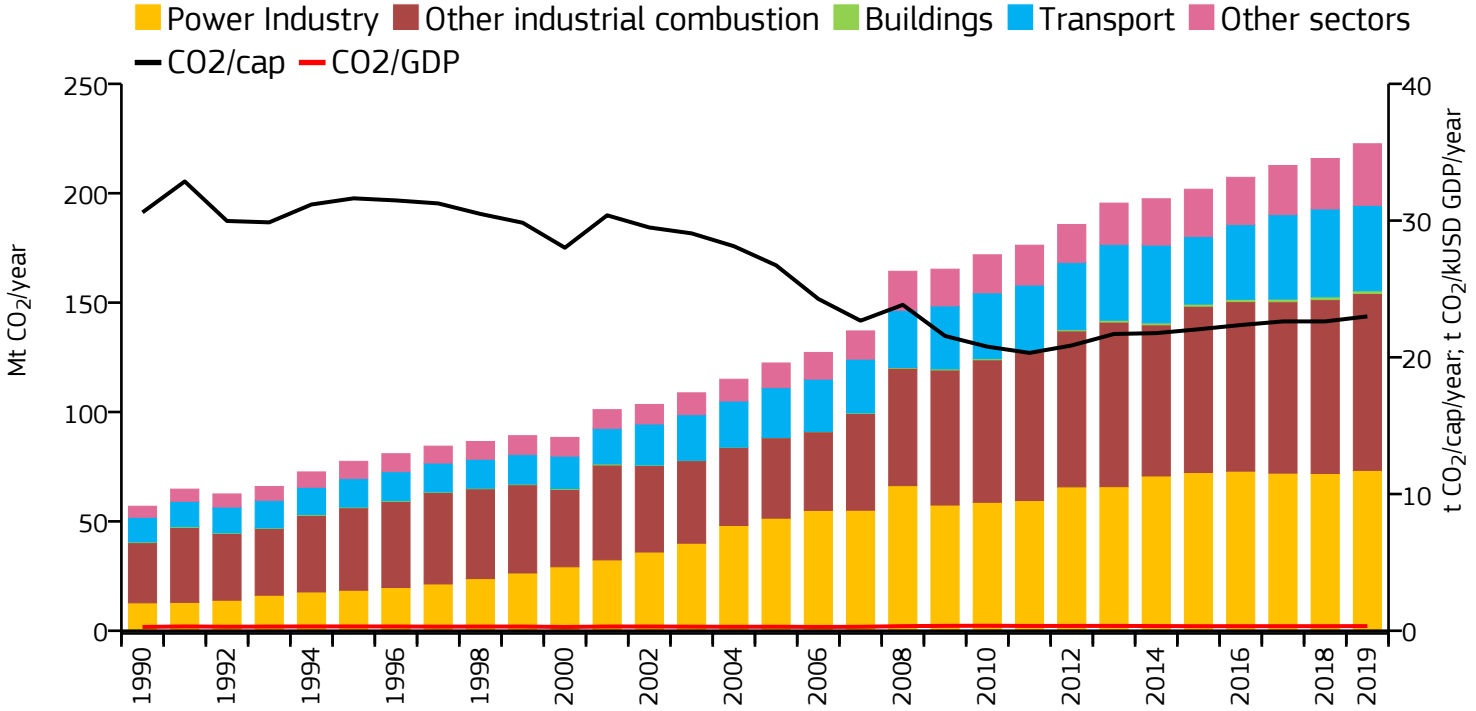
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	196.401	4.485	0.365	43.795M
2018	203.025	4.613	0.389	44.009M
2005	354.352	7.557	0.687	46.892M
1990	783.210	15.219	0.958	51.464M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-76%	-37%	-5%
Other industrial combustion	-81%	-51%	-4%
Buildings	-68%	-48%	-5%
Transport	-56%	-21%	+4%
Other sectors	-75%	-61%	+1%
All sectors	-75%	-45%	-3%

United Arab Emirates

Fossil CO_2 emissions by sector



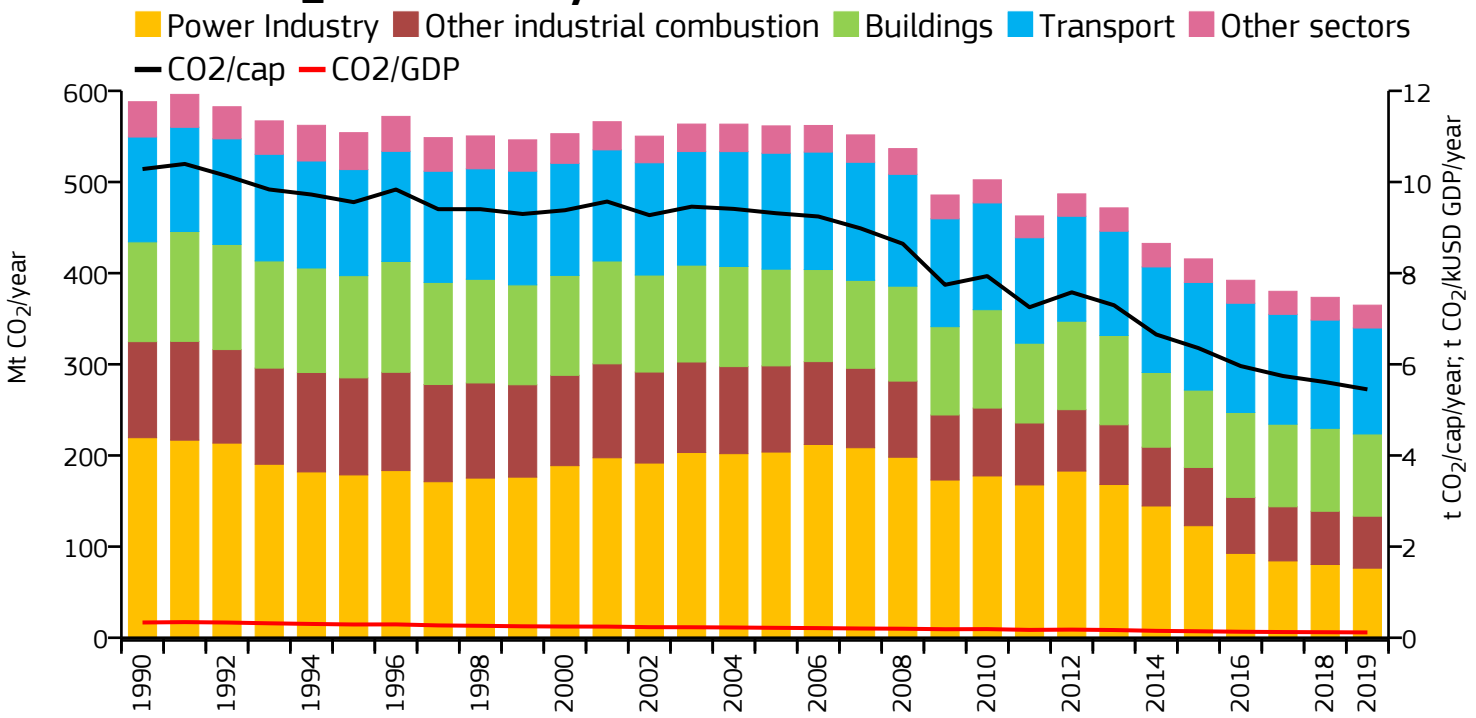
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	222.612	22.992	0.339	9.682M
2018	215.877	22.625	0.335	9.542M
2005	122.401	26.728	0.293	4.580M
1990	56.922	30.601	0.279	1.860M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+474%	+42%	+2%
Other industrial combustion	+194%	+120%	+2%
Buildings	+303%	+834%	-3%
Transport	+246%	+72%	-3%
Other sectors	+458%	+150%	+22%
All sectors	+291%	+82%	+3%

United Kingdom

Fossil CO_2 emissions by sector



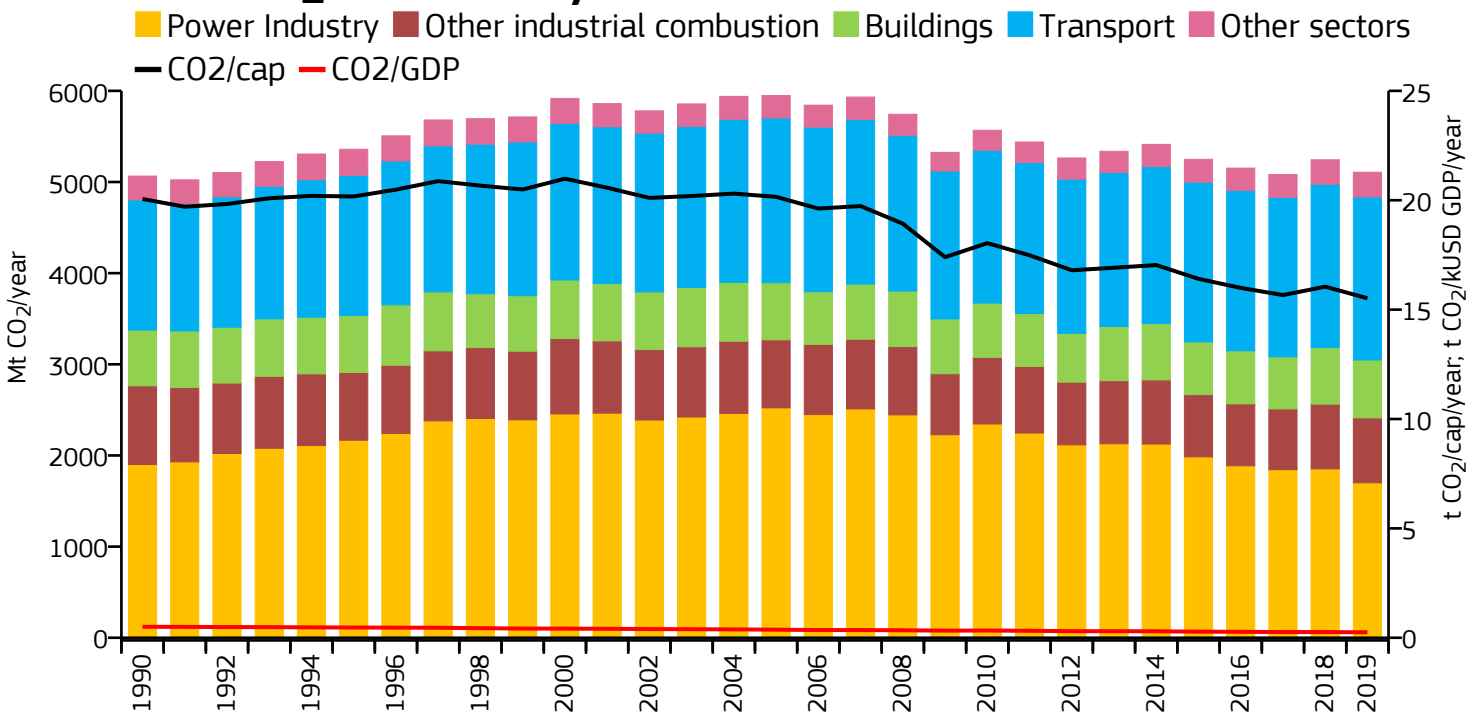
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	364.906	5.450	0.117	66.959M
2018	373.469	5.610	0.121	66.574M
2005	561.558	9.315	0.218	60.287M
1990	588.068	10.284	0.335	57.183M

EDGAR

	2019 vs 1990		2019 vs 2005		2019 vs 2018	
Power Industry	↘	-65%	↘	-63%	→	-5%
Other industrial combustion	↘	-46%	↘	-40%	→	-2%
Buildings	↘	-18%	↘	-15%	→	-1%
Transport	→	+1%	↘	-9%	→	-2%
Other sectors	↘	-35%	↘	-16%	→	+1%
All sectors	↘	-38%	↘	-35%	→	-2%

United States

Fossil CO_2 emissions by sector



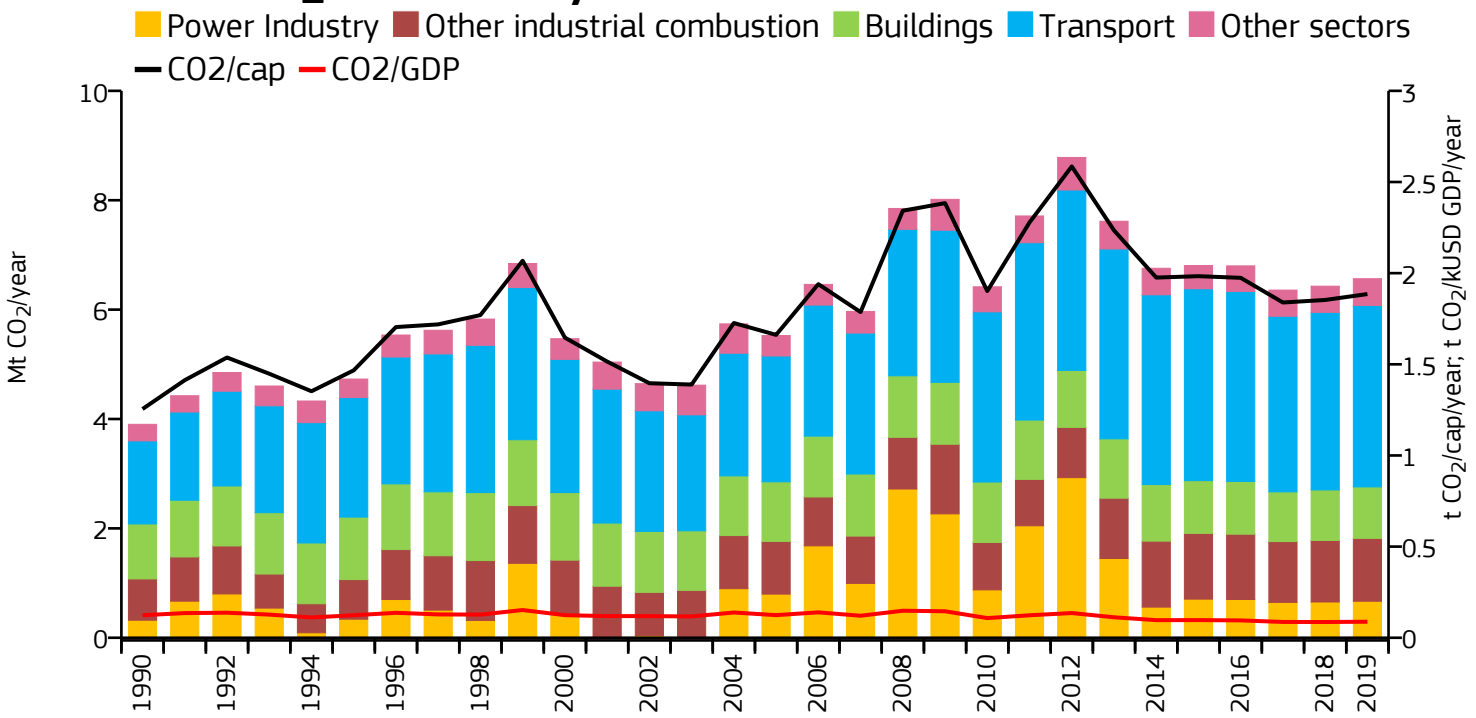
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	5107.261	15.519	0.248	329.093M
2018	5243.744	16.047	0.261	326.767M
2005	5948.472	20.155	0.370	295.130M
1990	5065.056	20.057	0.501	252.530M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-11%	-33%	-8%
Other industrial combustion	-17%	-4%	0%
Buildings	+4%	+1%	+2%
Transport	+25%	-1%	0%
Other sectors	+4%	+11%	+2%
All sectors	+1%	-14%	-3%

Uruguay

Fossil CO_2 emissions by sector

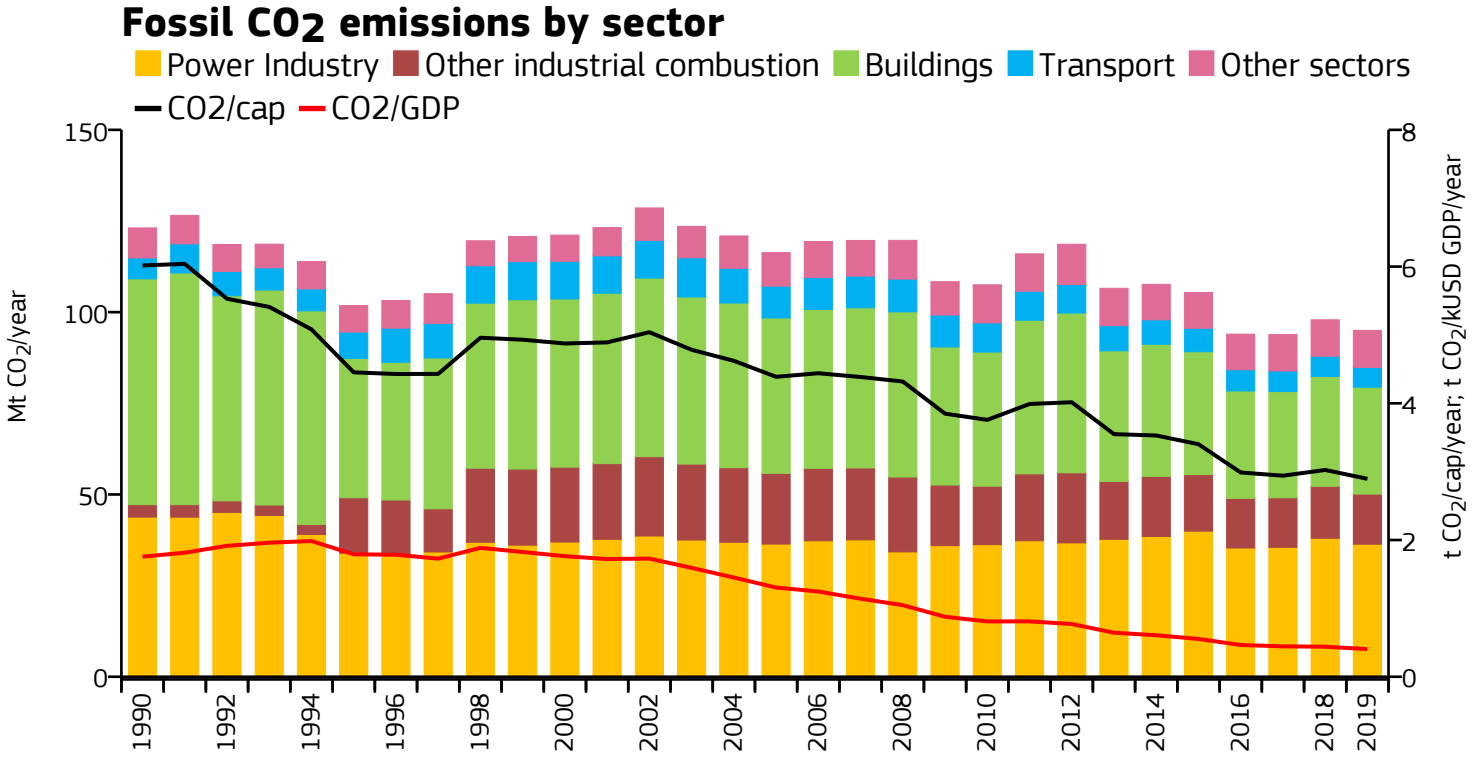


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	6.565	1.885	0.088	3.482M
2018	6.429	1.853	0.086	3.470M
2005	5.525	1.661	0.124	3.326M
1990	3.902	1.255	0.124	3.110M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+108%	-16%	+2%
Other industrial combustion	+52%	+19%	+2%
Buildings	-6%	-14%	+2%
Transport	+118%	+44%	+2%
Other sectors	+62%	+31%	+2%
All sectors	+68%	+19%	+2%

Uzbekistan



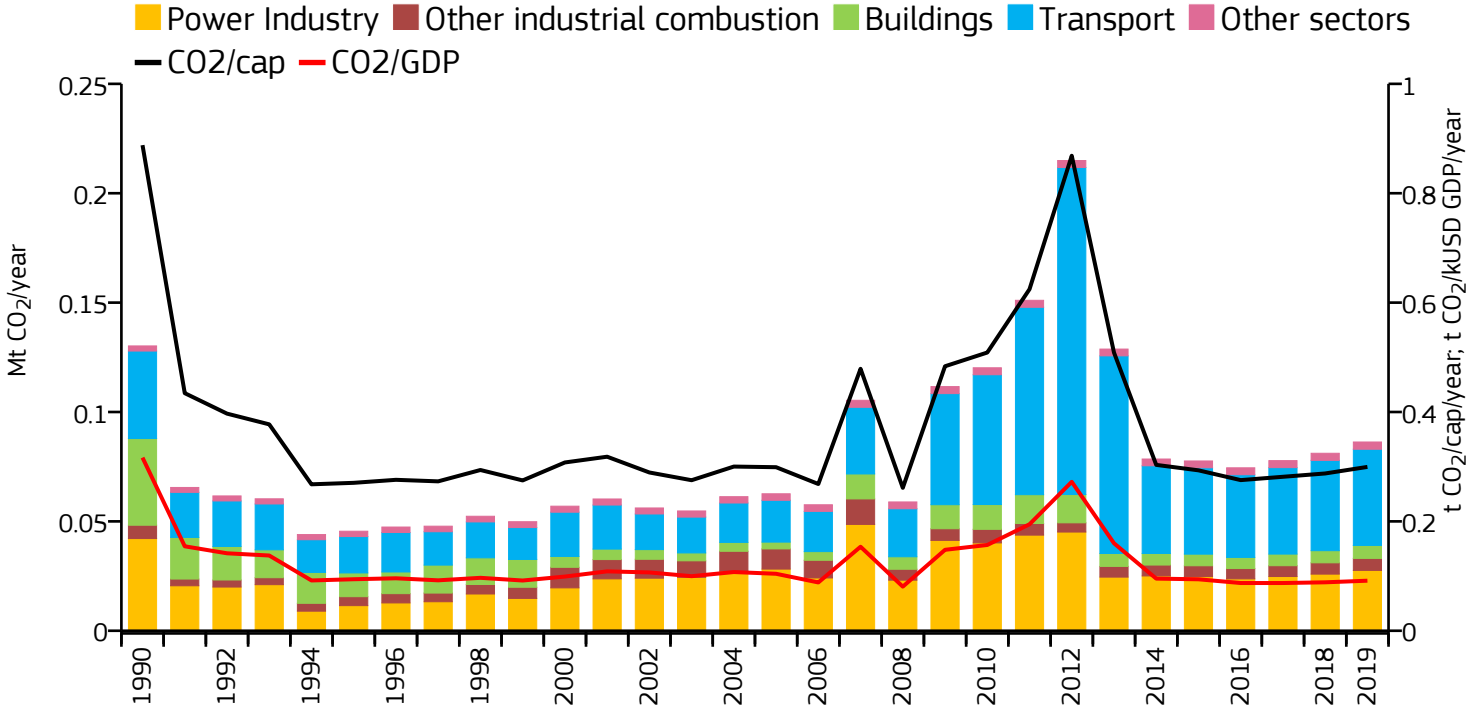
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	94.992	2.895	0.404	32.807M
2018	97.901	3.025	0.440	32.365M
2005	116.323	4.388	1.305	26.512M
1990	123.106	6.016	1.757	20.462M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-17%	0%	-4%
Other industrial combustion	+305%	-29%	-3%
Buildings	-53%	-31%	-3%
Transport	-5%	-38%	-3%
Other sectors	+23%	+11%	+2%
All sectors	-23%	-18%	-3%

Vanuatu

Fossil CO_2 emissions by sector



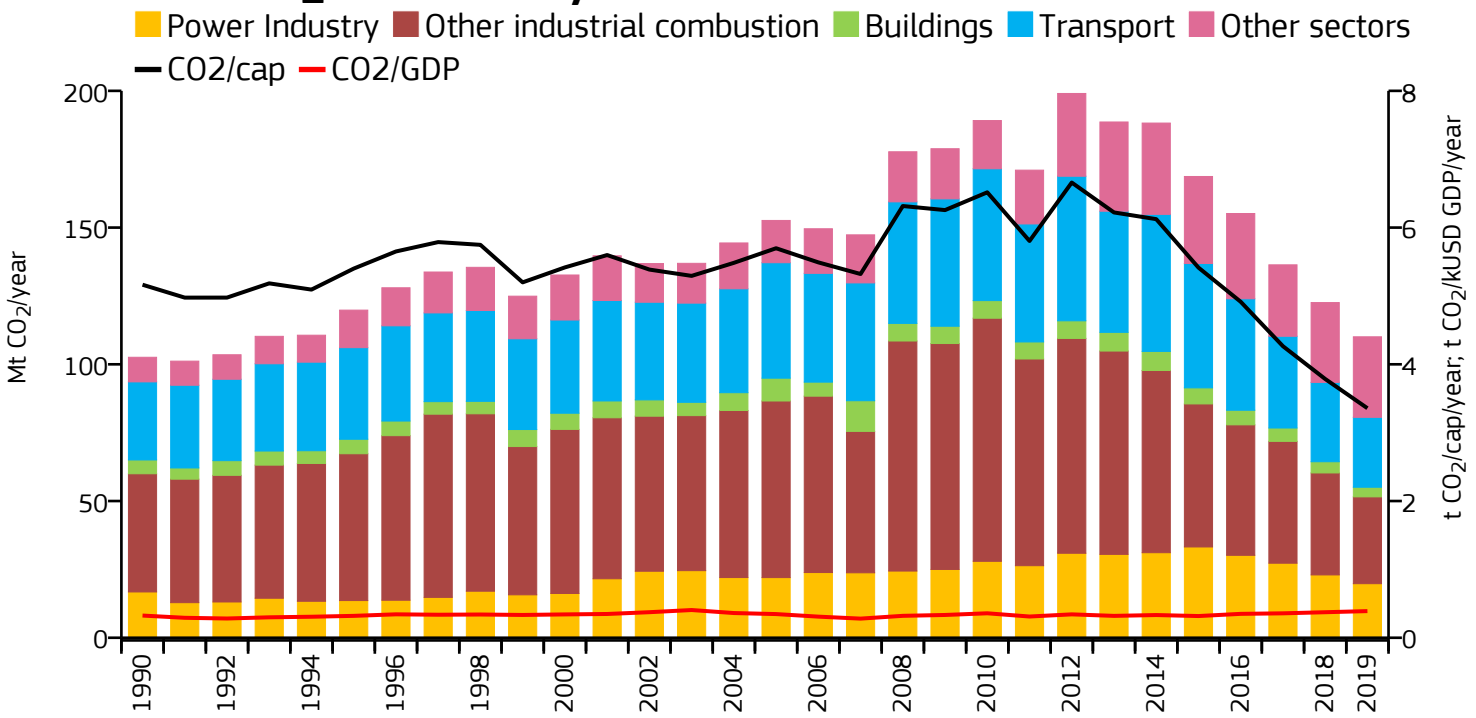
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.086	0.300	0.092	288.017k
2018	0.081	0.288	0.089	282.117k
2005	0.063	0.299	0.104	209.370k
1990	0.130	0.888	0.317	146.634k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-35%	-2%	+7%
Other industrial combustion	-10%	-40%	+7%
Buildings	-85%	+90%	+7%
Transport	+10%	+130%	+7%
Other sectors	+42%	+11%	+2%
All sectors	-34%	+38%	+6%

Venezuela

Fossil CO_2 emissions by sector



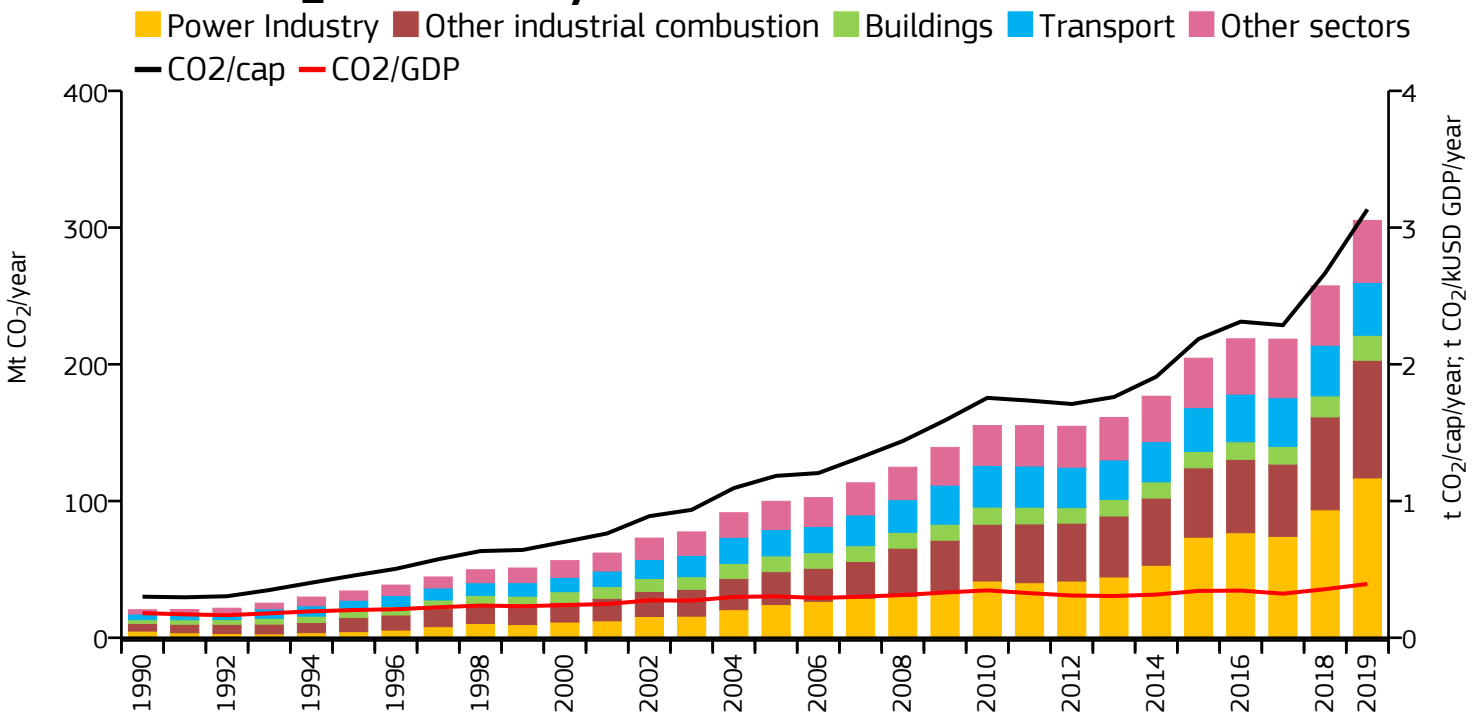
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	110.057	3.357	0.390	32.780M
2018	122.577	3.785	0.373	32.381M
2005	152.610	5.698	0.346	26.784M
1990	102.573	5.164	0.325	19.862M

EDGAR

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+18%	-10%	-14%
Other industrial combustion	-27%	-51%	-15%
Buildings	-30%	-58%	-14%
Transport	-10%	-39%	-12%
Other sectors	+227%	+90%	+1%
All sectors	+7%	-28%	-10%

Vietnam

Fossil CO_2 emissions by sector



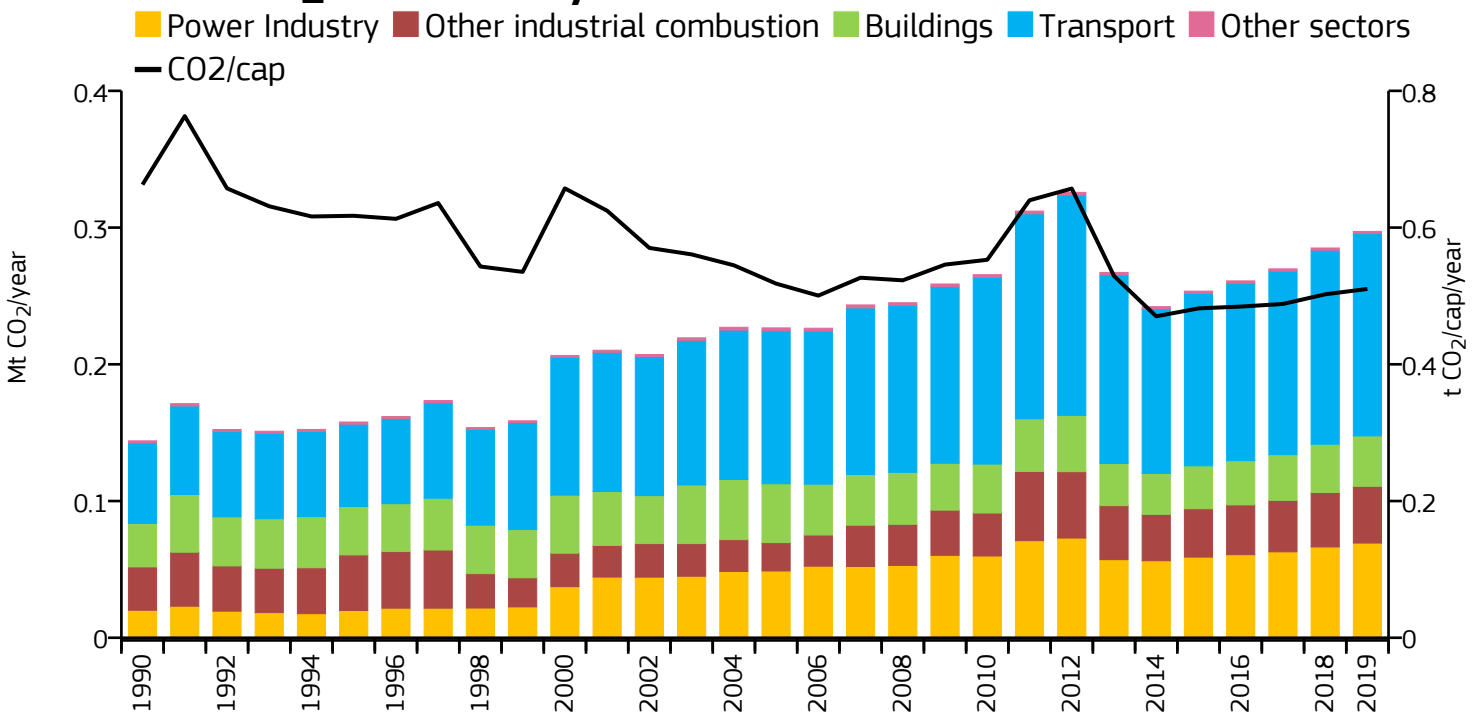
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	305.249	3.133	0.394	97.429M
2018	257.377	2.667	0.355	96.491M
2005	99.819	1.184	0.303	84.309M
1990	20.483	0.300	0.180	68.210M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	↗ +2295%	↗ +381%	↗ +25%
Other industrial combustion	↗ +1420%	↗ +258%	↗ +27%
Buildings	↗ +583%	↗ +59%	↗ +19%
Transport	↗ +828%	↗ +101%	→ +4%
Other sectors	↗ +1366%	↗ +119%	→ +4%
All sectors	↗ +1390%	↗ +206%	↗ +19%

Western Sahara

Fossil CO_2 emissions by sector

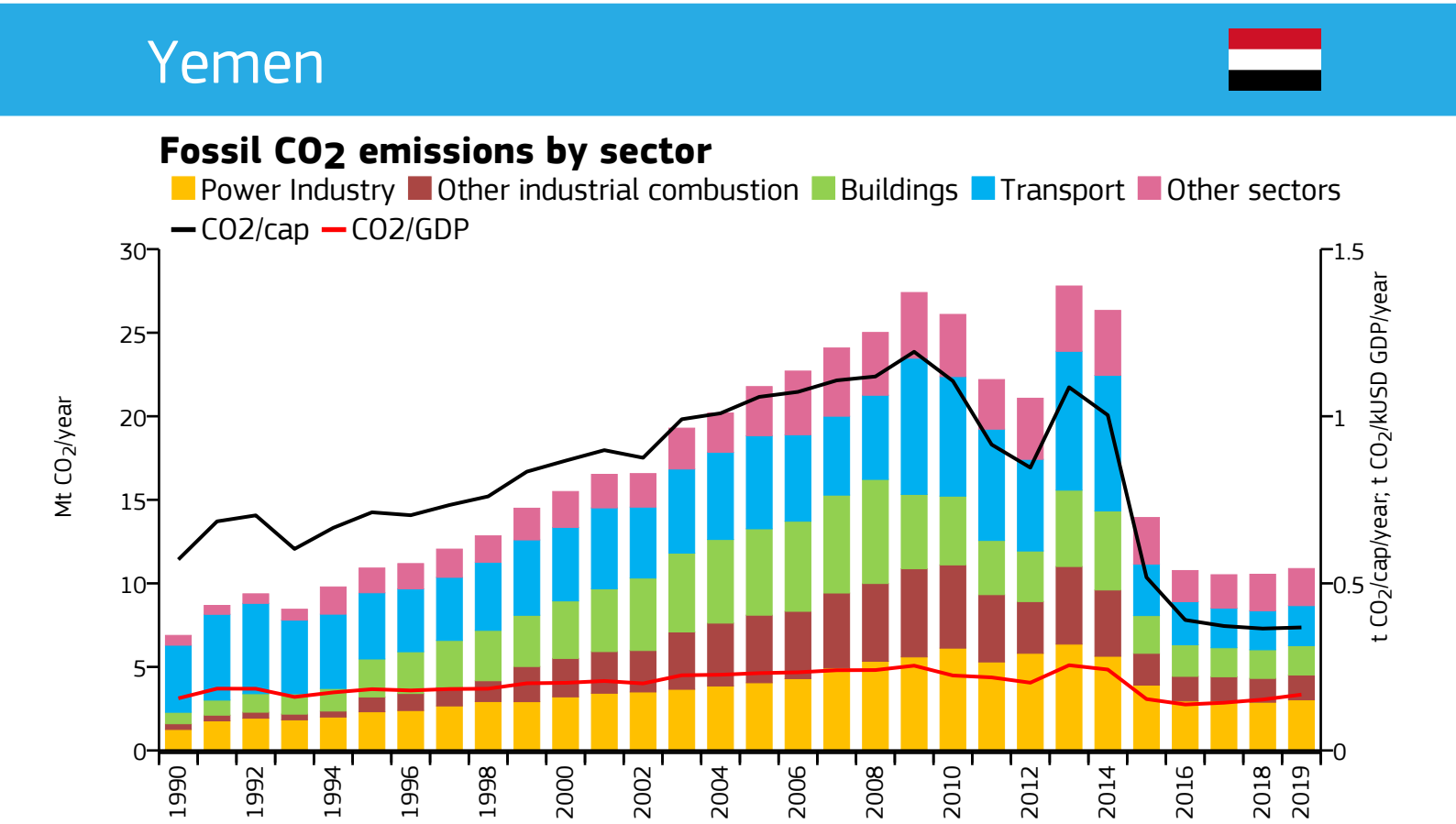


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	0.297	0.510	n/a	582.478k
2018	0.285	0.502	n/a	567.421k
2005	0.227	0.518	n/a	437.515k
1990	0.144	0.663	n/a	217.258k

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+244%	+42%	+4%
Other industrial combustion	+31%	+100%	+4%
Buildings	+16%	-14%	+4%
Transport	+151%	+32%	+4%
Other sectors	+8%	-24%	-1%
All sectors	+106%	+31%	+4%

Yemen



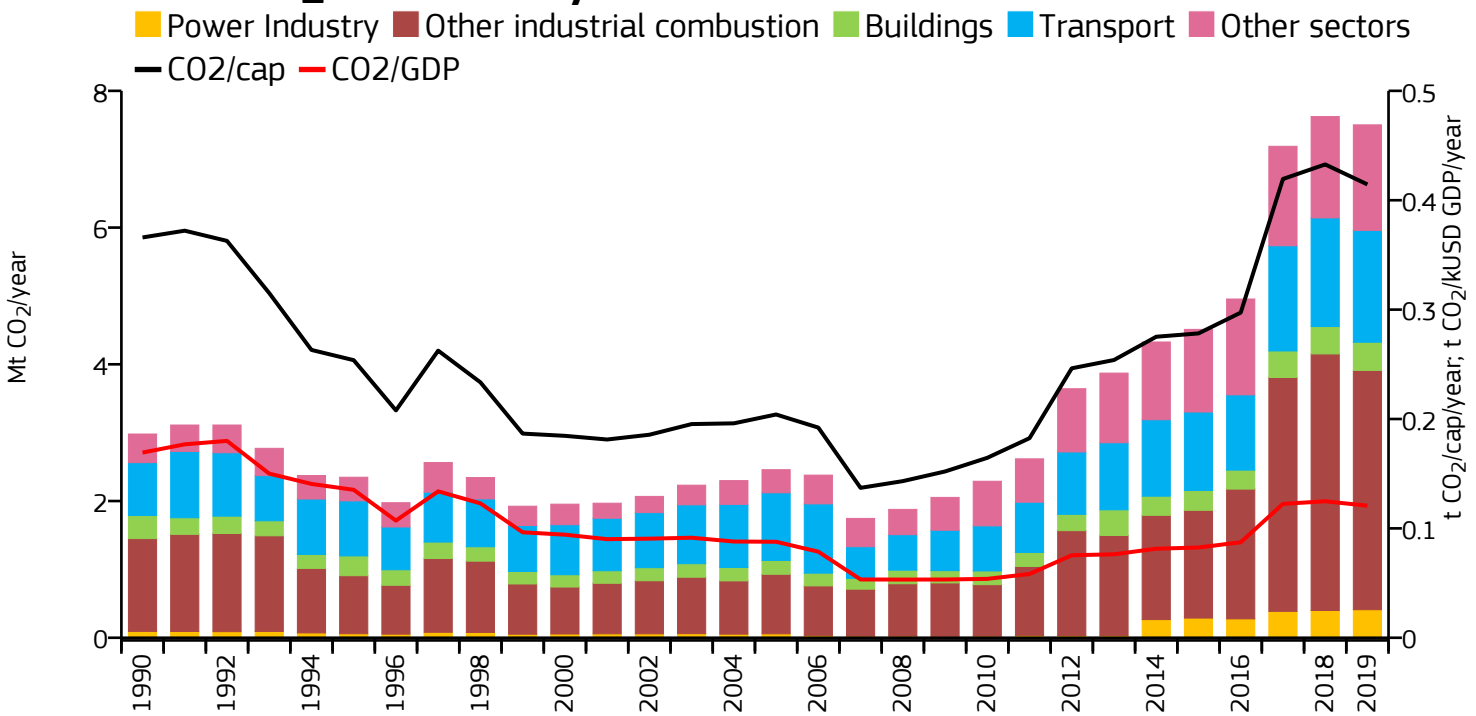
Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	10.888	0.368	0.167	29.580M
2018	10.545	0.365	0.152	28.915M
2005	21.777	1.058	0.231	20.583M
1990	6.887	0.571	0.156	12.057M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+141%	-25%	+5%
Other industrial combustion	+334%	-63%	+4%
Buildings	+156%	-66%	+3%
Transport	-40%	-57%	+3%
Other sectors	+277%	-24%	+2%
All sectors	+58%	-50%	+3%

Zambia

Fossil CO_2 emissions by sector

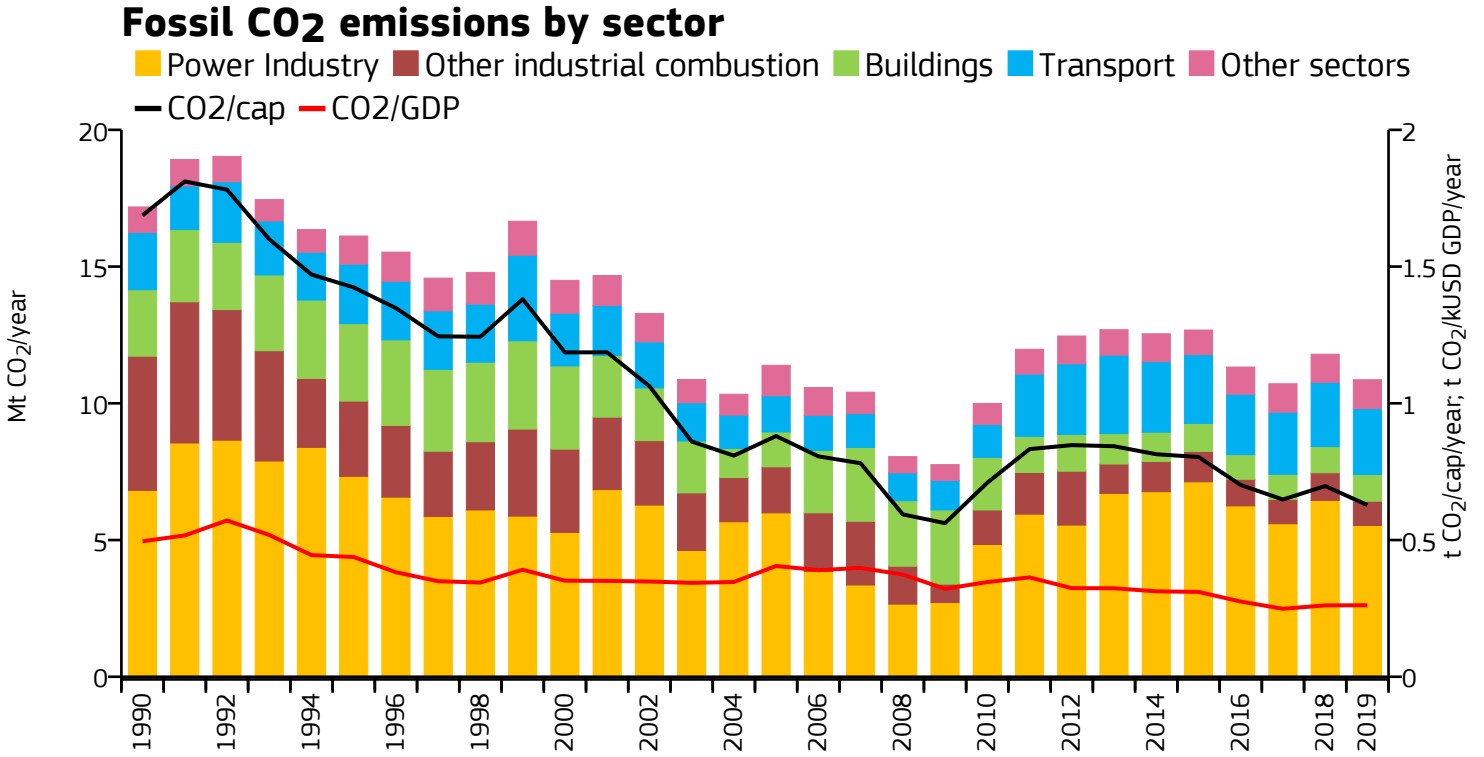


Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	7.503	0.414	0.121	18.102M
2018	7.624	0.433	0.125	17.618M
2005	2.458	0.204	0.088	12.044M
1990	2.980	0.366	0.169	8.143M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	+341%	+614%	+3%
Other industrial combustion	+158%	+302%	-7%
Buildings	+22%	+104%	+3%
Transport	+111%	+65%	+3%
Other sectors	+269%	+357%	+4%
All sectors	+152%	+205%	-2%

Zimbabwe



Year	Mt CO_2/yr	t CO_2/cap/yr	t CO_2/kUSD/yr	Population
2019	10.862	0.628	0.262	17.297M
2018	11.795	0.697	0.261	16.913M
2005	11.390	0.880	0.405	12.940M
1990	17.181	1.687	0.495	10.183M

EDGAR
EMISSION DATABASE FOR GLOBAL ATMOSPHERIC RESEARCH

	2019 vs 1990	2019 vs 2005	2019 vs 2018
Power Industry	-19%	-8%	-14%
Other industrial combustion	-82%	-47%	-12%
Buildings	-60%	-24%	+2%
Transport	+15%	+82%	+3%
Other sectors	+13%	-5%	+2%
All sectors	-37%	-5%	-8%

Disclaimer

This publication presents the fossil CO_2 emissions from all countries without any prejudice to the status or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory. Country names are consistent with the Interinstitutional Style Guide of the European Commission available at http://publications.europa.eu/code/en/en-370100.htm, the “Short name” definition listed in the "List of countries, territories and currencies" table at http://publications.europa.eu/code/en/en-5000500.htm has been used (updated at 07/07/2020).

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:
- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),

- at the following standard number: +32 22999696, or

- by electronic mail via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications
You can download or order free and priced EU publications from EU Bookshop at: https://publications.europa.eu/en/publications. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

KJ-NA-30358-EN-N

The European Commission's science and knowledge service

Joint Research Centre

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.

EU Science Hub

ec.europa.eu/jrc

@EU_ScienceHub

EU Science Hub - Joint Research Centre

Joint Research Centre

EU Science Hub

Publications Office of the European Union

doi:10.2760/143674

ISBN 978-92-76-21515-8